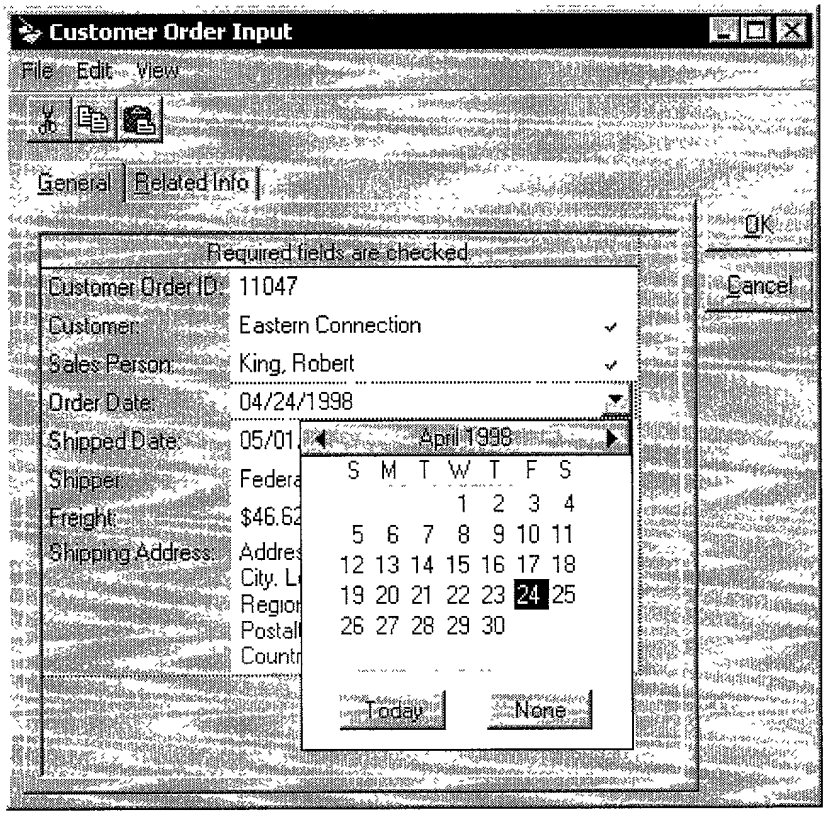

Customer Order Input
File Edit View
General Related Info
OK
Cancel
Required fields are checked
Customer Order ID: 11047
Customer: Eastern Connection
Sales Person: King, Robert
Order Date: 04/24/1998
Shipped Date: 05/01
Shipper: Federa
Freight: $46.62
Shipping Address: Addres
City. L
Region
Postal
Countr
April 1998
S M T W T F S
1 2 3 4
5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30
Today
None

FIG. 1

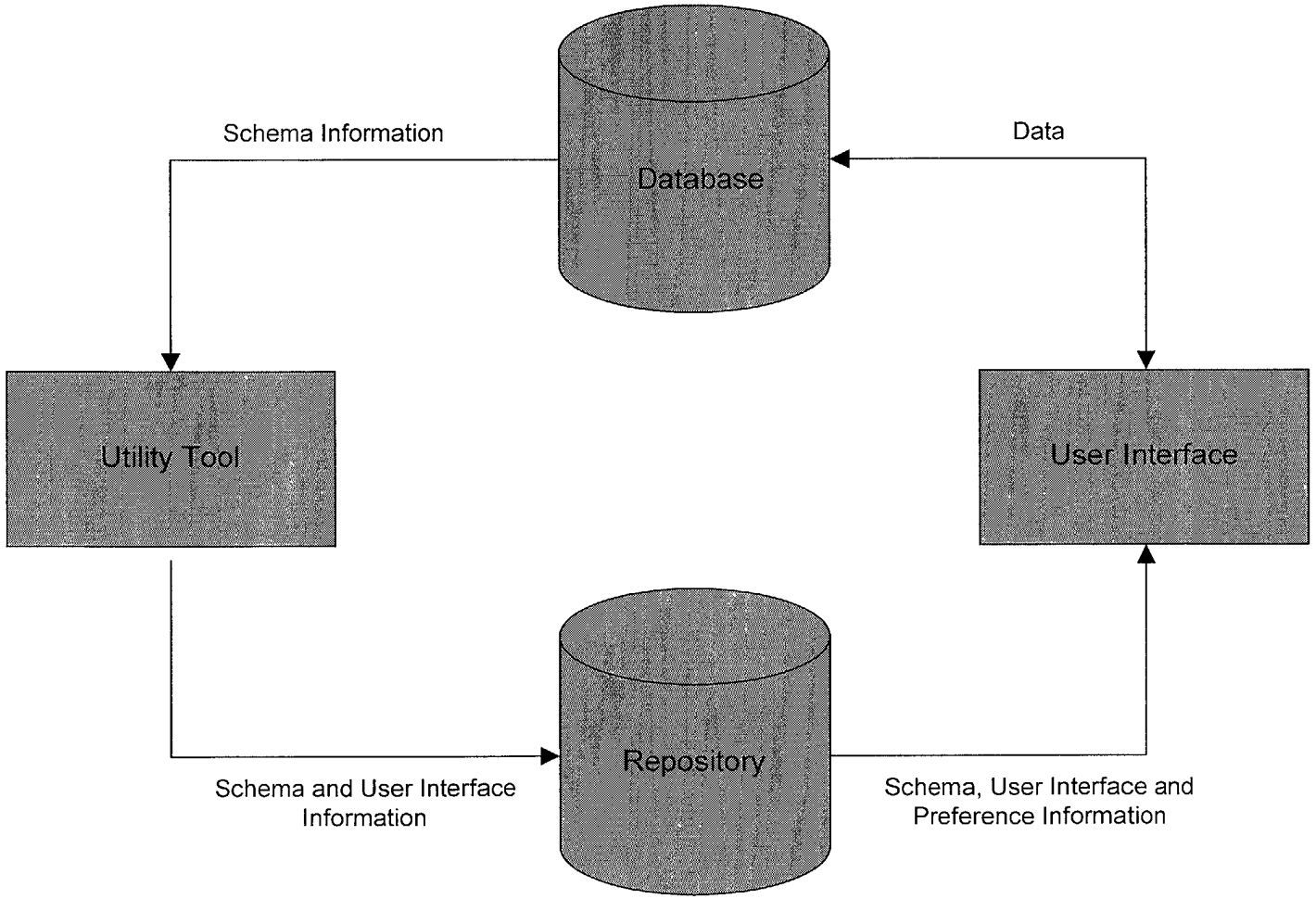

Schema Information
Data
Database
Utility Tool
User Interface
Repository
Schema and User Interface Information
Schema, User Interface and Preference Information

FIG. 2

Relational Database Normalization

The First 4 Normal Forms

1st Normal Form

Practical Rule: Eliminate Repeating Groups: Make a separate table for each set of related attributes, and give each table a primary key.

Formal Definition: A relation is in first normal form (1NF) if and only if all underlying simple domains contain atomic values only.

2nd Normal Form

Practical Rule: Eliminate Redundant Data: If an attribute depends on only part of a multi-valued key, remove it to a separate table.

Formal Definition: A relation is in second normal form (2NF) if and only if it is in 1NF and every non-key attribute is fully dependent on the primary key.

3rd Normal Form

Practical Rule: Eliminate Fields Not Dependent On Key: If attributes do not contribute to a description of a key, remove them to a separate table.

Formal Definition: A relation is in third normal form (3NF) if and only if it is in 2NF and every non-key attribute is non-transitively dependent on the primary key.

4th Normal Form

Practical Rule: Isolate Independent Multiple Relationships: No table may contain two or more one-to-many or many-to-many relationships that are not directly related.

Formal Definition: A relation R is in fourth normal form (4NF) if and only if, whenever there exists a multi-valued dependency in the R, say B depends on A, then all attributes of R are also functionally dependent on A.

FIG. 3

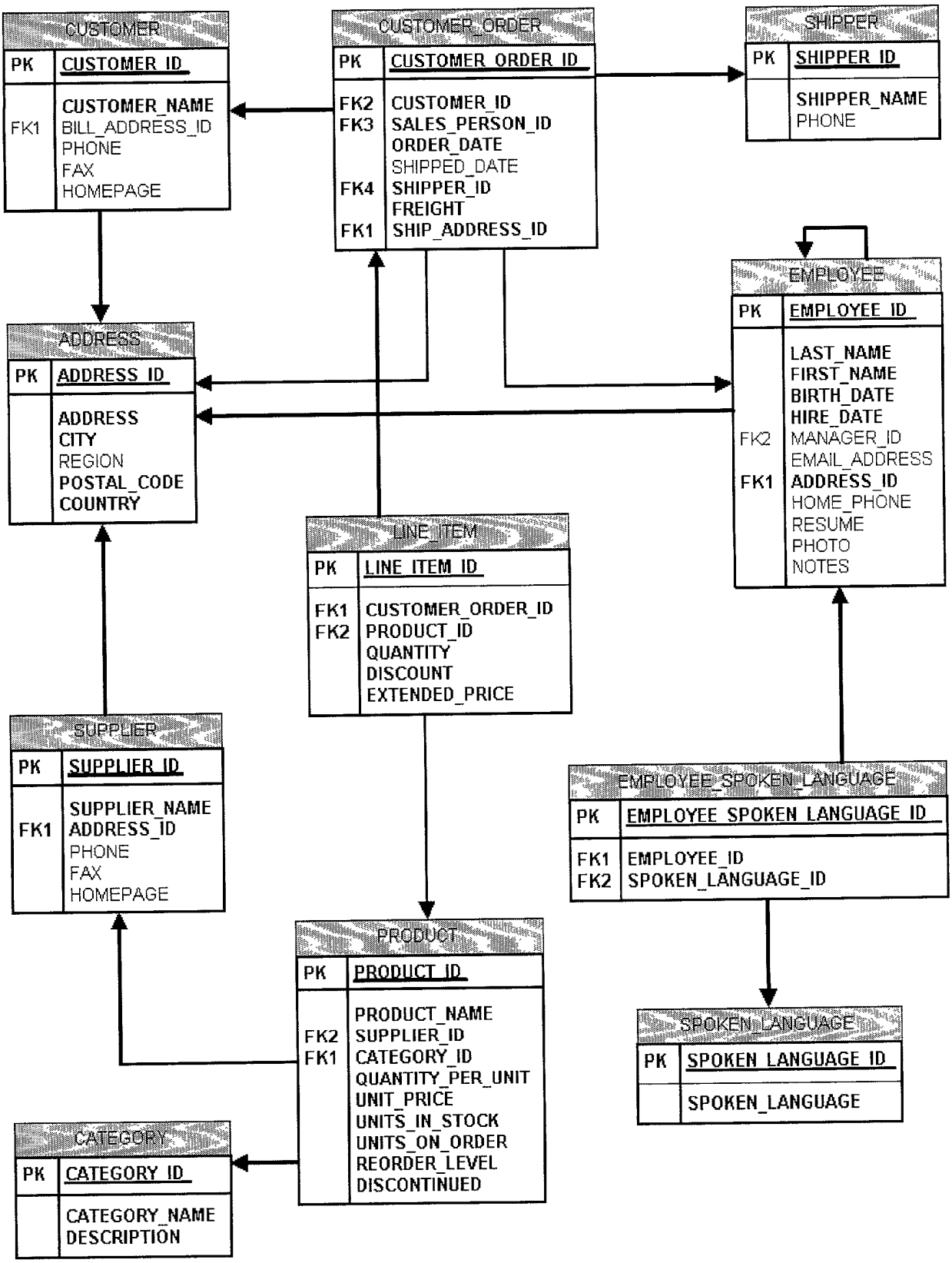

CUSTOMER
PK CUSTOMER_ID
CUSTOMER_NAME
FK1 BILL_ADDRESS_ID
PHONE
FAX
HOMEPAGE
CUSTOMER_ORDER
PK CUSTOMER_ORDER_ID
FK2 CUSTOMER_ID
FK3 SALES_PERSON_ID
ORDER_DATE
SHIPPED_DATE
FK4 SHIPPER_ID
FREIGHT
FK1 SHIP_ADDRESS_ID
SHIPPER
PK SHIPPER_ID
SHIPPER_NAME
PHONE
EMPLOYEE
PK EMPLOYEE_ID
LAST_NAME
FIRST_NAME
BIRTH_DATE
HIRE_DATE
FK2 MANAGER_ID
EMAIL_ADDRESS
FK1 ADDRESS_ID
HOME_PHONE
RESUME
PHOTO
NOTES
ADDRESS
PK ADDRESS_ID
ADDRESS
CITY
REGION
POSTAL_CODE
COUNTRY
LINE_ITEM
PK LINE_ITEM_ID
FK1 CUSTOMER_ORDER_ID
FK2 PRODUCT_ID
QUANTITY
DISCOUNT
EXTENDED_PRICE
SUPPLIER
PK SUPPLIER_ID
FK1 SUPPLIER_NAME
ADDRESS_ID
PHONE
FAX
HOMEPAGE
EMPLOYEE_SPOKEN_LANGUAGE
PK EMPLOYEE_SPOKEN_LANGUAGE_ID
FK1 EMPLOYEE_ID
FK2 SPOKEN_LANGUAGE_ID
PRODUCT
PK PRODUCT_ID
PRODUCT_NAME
FK2 SUPPLIER_ID
FK1 CATEGORY_ID
QUANTITY_PER_UNIT
UNIT_PRICE
UNITS_IN_STOCK
UNITS_ON_ORDER
REORDER_LEVEL
DISCONTINUED
SPOKEN_LANGUAGE
PK SPOKEN_LANGUAGE_ID
SPOKEN_LANGUAGE
CATEGORY
PK CATEGORY_ID
CATEGORY_NAME
DESCRIPTION

FIG. 4

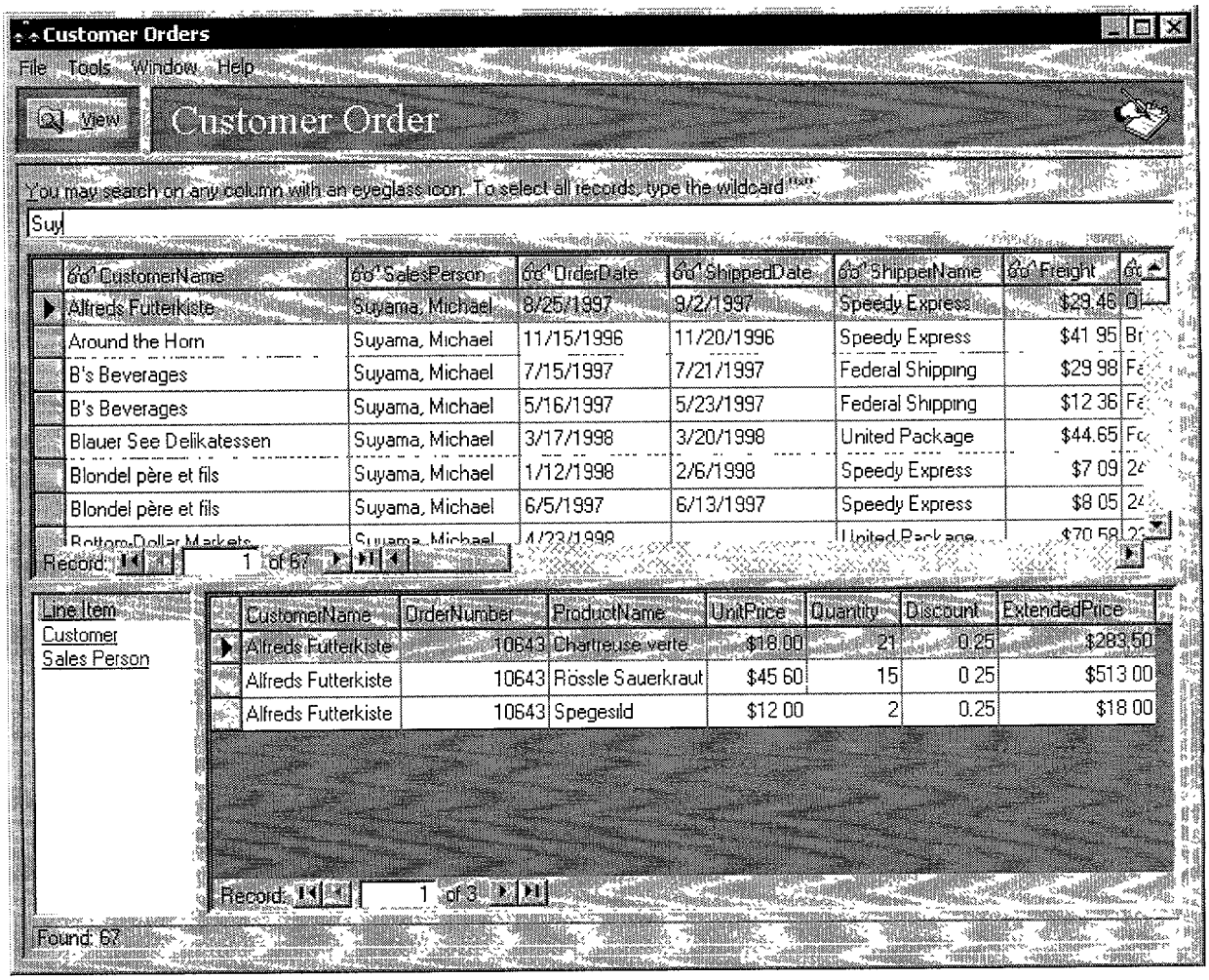

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard '*'
Suy
CustomerName | SalesPerson | OrderDate | ShippedDate | ShipperName | Freight
Alfreds Futterkiste | Suyama, Michael | 8/25/1997 | 9/2/1997 | Speedy Express | $29.46
Around the Horn | Suyama, Michael | 11/15/1996 | 11/20/1996 | Speedy Express | $41.95
B's Beverages | Suyama, Michael | 7/15/1997 | 7/21/1997 | Federal Shipping | $29.98
B's Beverages | Suyama, Michael | 5/16/1997 | 5/23/1997 | Federal Shipping | $12.36
Blauer See Delikatessen | Suyama, Michael | 3/17/1998 | 3/20/1998 | United Package | $44.65
Blondel père et fils | Suyama, Michael | 1/12/1998 | 2/6/1998 | Speedy Express | $7.09
Blondel père et fils | Suyama, Michael | 6/5/1997 | 6/13/1997 | Speedy Express | $8.05
Record: 1 of 67
Line Item
Customer
Sales Person
CustomerName | OrderNumber | ProductName | UnitPrice | Quantity | Discount | ExtendedPrice
Alfreds Futterkiste | 10643 | Chartreuse verte | $18.00 | 21 | 0.25 | $283.50
Alfreds Futterkiste | 10643 | Rössle Sauerkraut | $45.60 | 15 | 0.25 | $513.00
Alfreds Futterkiste | 10643 | Spegesild | $12.00 | 2 | 0.25 | $18.00
Record: 1 of 3
Found: 67

FIG. 5

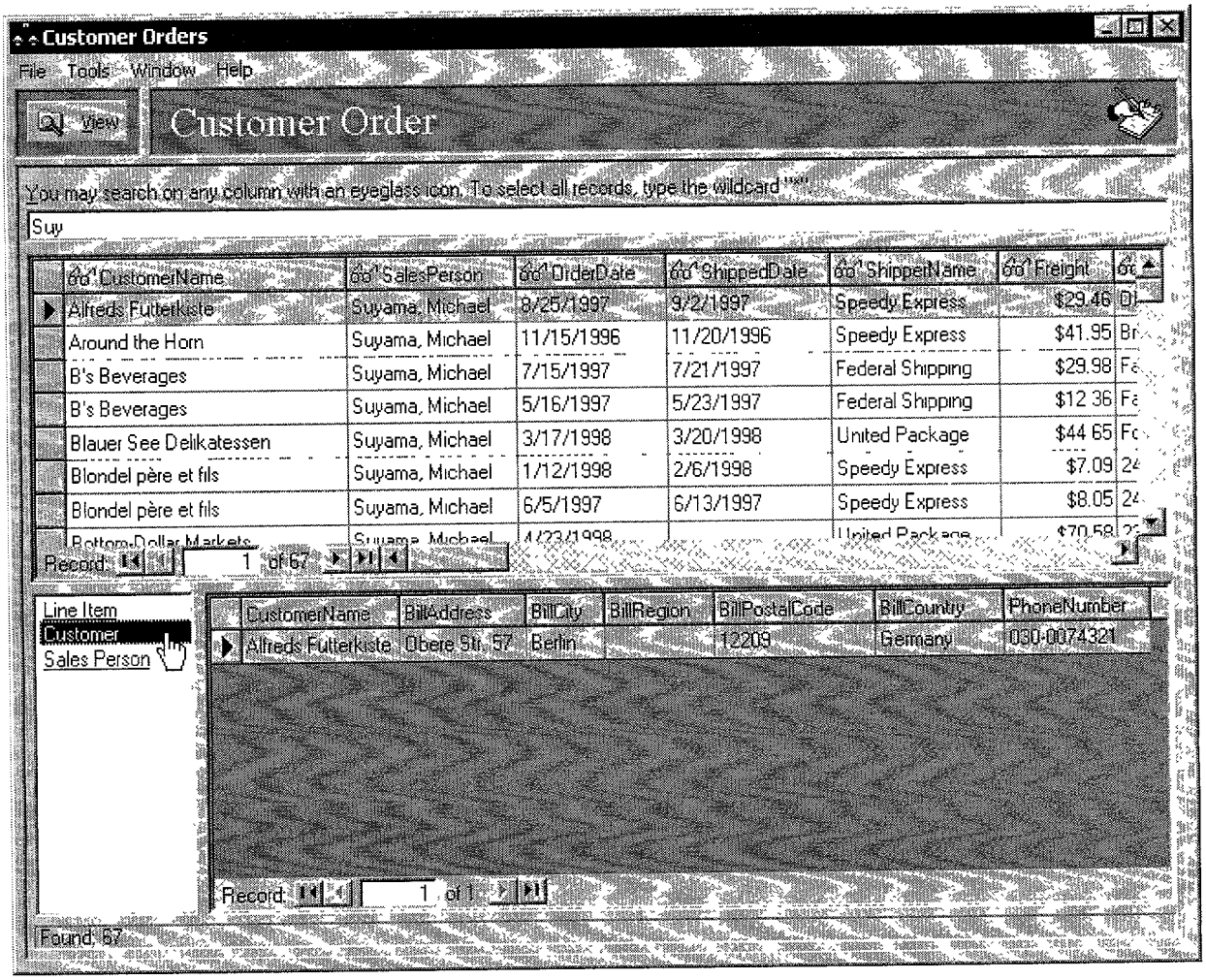

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*"
Suy
CustomerName
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
Alfreds Futterkiste
Suyama, Michael
8/25/1997
9/2/1997
Speedy Express
$29.46
Around the Horn
Suyama, Michael
11/15/1996
11/20/1996
Speedy Express
$41.95
B's Beverages
Suyama, Michael
7/15/1997
7/21/1997
Federal Shipping
$29.98
B's Beverages
Suyama, Michael
5/16/1997
5/23/1997
Federal Shipping
$12.36
Blauer See Delikatessen
Suyama, Michael
3/17/1998
3/20/1998
United Package
$44.65
Blondel père et fils
Suyama, Michael
1/12/1998
2/6/1998
Speedy Express
$7.09
Blondel père et fils
Suyama, Michael
6/5/1997
6/13/1997
Speedy Express
$8.05
Record: 1 of 67
Line Item
Customer
Sales Person
CustomerName
BillAddress
BillCity
BillRegion
BillPostalCode
BillCountry
PhoneNumber
Alfreds Futterkiste
Obere Str. 57
Berlin
12209
Germany
030-0074321
Record: 1 of 1
Found: 67

FIG. 6

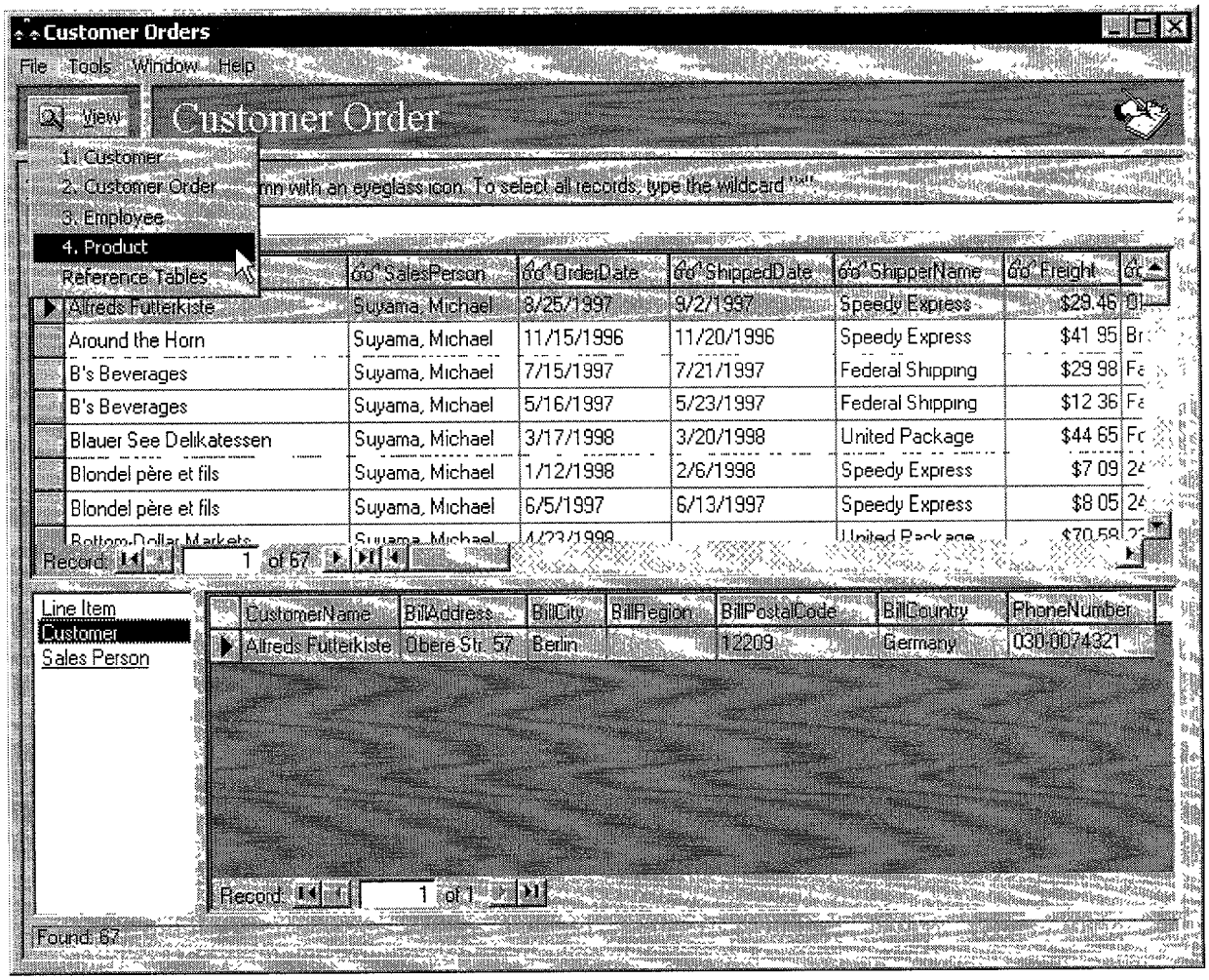

Customer Orders
File Tools Window Help
View
Customer Order
1. Customer
2. Customer Order
3. Employee
4. Product
Reference Tables
mn with an eyeglass icon. To select all records, type the wildcard '*'.
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
Alfreds Futterkiste Suyama, Michael 8/25/1997 9/2/1997 Speedy Express $29.46
Around the Horn Suyama, Michael 11/15/1996 11/20/1996 Speedy Express $41.95
B's Beverages Suyama, Michael 7/15/1997 7/21/1997 Federal Shipping $29.98
B's Beverages Suyama, Michael 5/16/1997 5/23/1997 Federal Shipping $12.36
Blauer See Delikatessen Suyama, Michael 3/17/1998 3/20/1998 United Package $44.65
Blondel père et fils Suyama, Michael 1/12/1998 2/6/1998 Speedy Express $7.09
Blondel père et fils Suyama, Michael 6/5/1997 6/13/1997 Speedy Express $8.05
Record: 1 of 67
Line Item
Customer
Sales Person
CustomerName
BillAddress
BillCity
BillRegion
BillPostalCode
BillCountry
PhoneNumber
Alfreds Futterkiste Obere Str. 57 Berlin 12209 Germany 030-0074321
Record: 1 of 1
Found: 67

FIG. 7

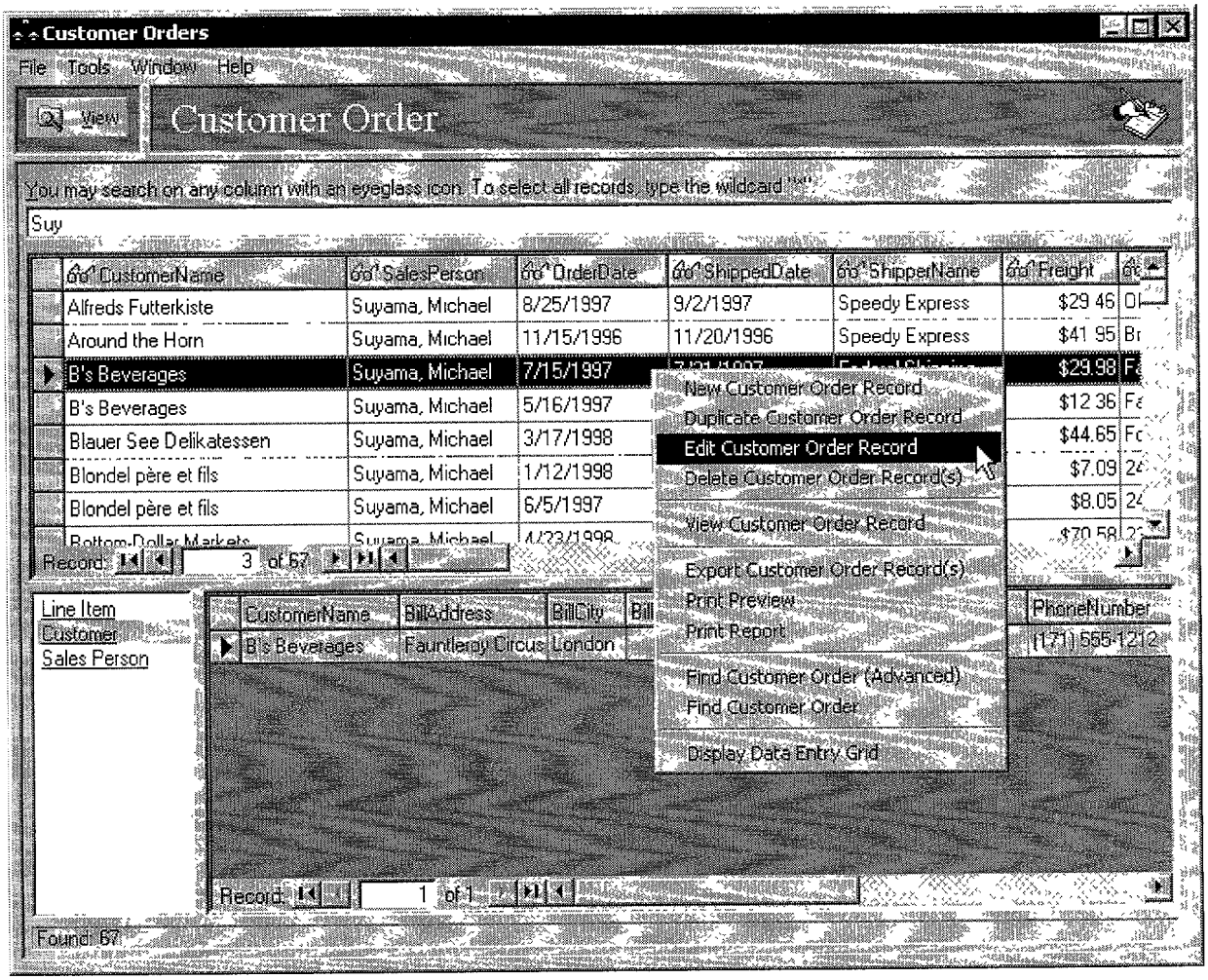

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*".
Suy
CustomerName
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
Alfreds Futterkiste Suyama, Michael 8/25/1997 9/2/1997 Speedy Express $29.46
Around the Horn Suyama, Michael 11/15/1996 11/20/1996 Speedy Express $41.95
B's Beverages Suyama, Michael 7/15/1997 $29.98
B's Beverages Suyama, Michael 5/16/1997 $12.36
Blauer See Delikatessen Suyama, Michael 3/17/1998 $44.65
Blondel père et fils Suyama, Michael 1/12/1998 $7.09
Blondel père et fils Suyama, Michael 6/5/1997 $8.05
Record: 3 of 67
New Customer Order Record
Duplicate Customer Order Record
Edit Customer Order Record
Delete Customer Order Record(s)
View Customer Order Record
Export Customer Order Record(s)
Print Preview
Print Report
Find Customer Order (Advanced)
Find Customer Order
Display Data Entry Grid
Line Item
Customer
Sales Person
CustomerName
BillAddress
BillCity
PhoneNumber
B's Beverages Fauntleroy Circus London (171) 555-1212
Record: 1 of 1
Found: 67

FIG. 8

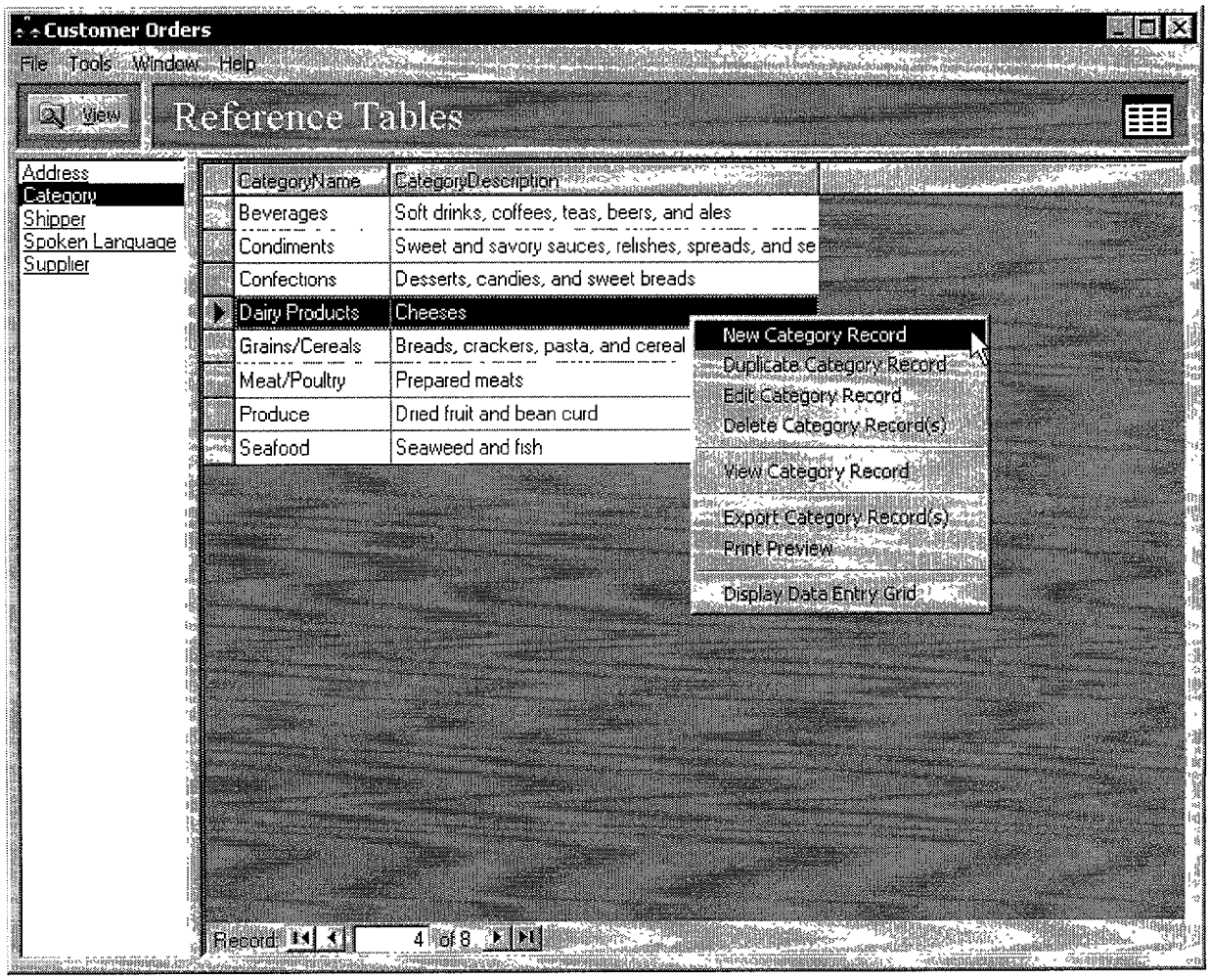

Customer Orders
File Tools Window Help
View
Reference Tables
Address
Category
Shipper
Spoken Language
Supplier
CategoryName
CategoryDescription
Beverages
Soft drinks, coffees, teas, beers, and ales
Condiments
Sweet and savory sauces, relishes, spreads, and se
Confections
Desserts, candies, and sweet breads
Dairy Products
Cheeses
Grains/Cereals
Breads, crackers, pasta, and cereal
Meat/Poultry
Prepared meats
Produce
Dried fruit and bean curd
Seafood
Seaweed and fish
New Category Record
Duplicate Category Record
Edit Category Record
Delete Category Record(s)
View Category Record
Export Category Record(s)
Print Preview
Display Data Entry Grid
Record
4 of 8

FIG. 9

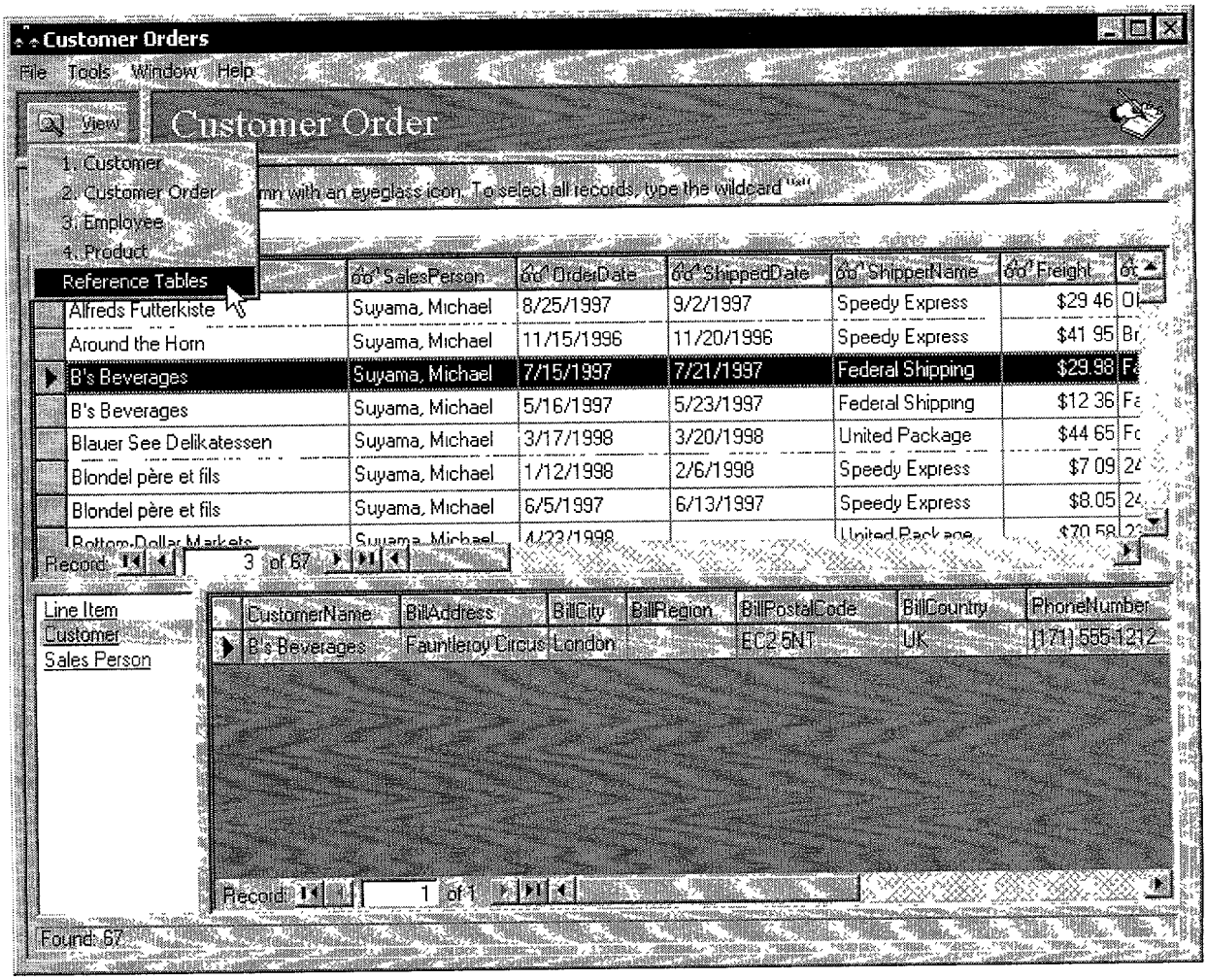

Customer Orders
File Tools Window Help
View
Customer Order
1. Customer
2. Customer Order
3. Employee
4. Product
Reference Tables
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
Alfreds Futterkiste Suyama, Michael 8/25/1997 9/2/1997 Speedy Express $29.46
Around the Horn Suyama, Michael 11/15/1996 11/20/1996 Speedy Express $41.95
B's Beverages Suyama, Michael 7/15/1997 7/21/1997 Federal Shipping $29.98
B's Beverages Suyama, Michael 5/16/1997 5/23/1997 Federal Shipping $12.36
Blauer See Delikatessen Suyama, Michael 3/17/1998 3/20/1998 United Package $44.65
Blondel père et fils Suyama, Michael 1/12/1998 2/6/1998 Speedy Express $7.09
Blondel père et fils Suyama, Michael 6/5/1997 6/13/1997 Speedy Express $8.05
Record: 3 of 67
Line Item
Customer
Sales Person
CustomerName
BillAddress
BillCity
BillRegion
BillPostalCode
BillCountry
PhoneNumber
B's Beverages Fauntleroy Circus London EC2 5NT UK (171) 555-1212
Record: 1 of 1
Found: 67

FIG. 10

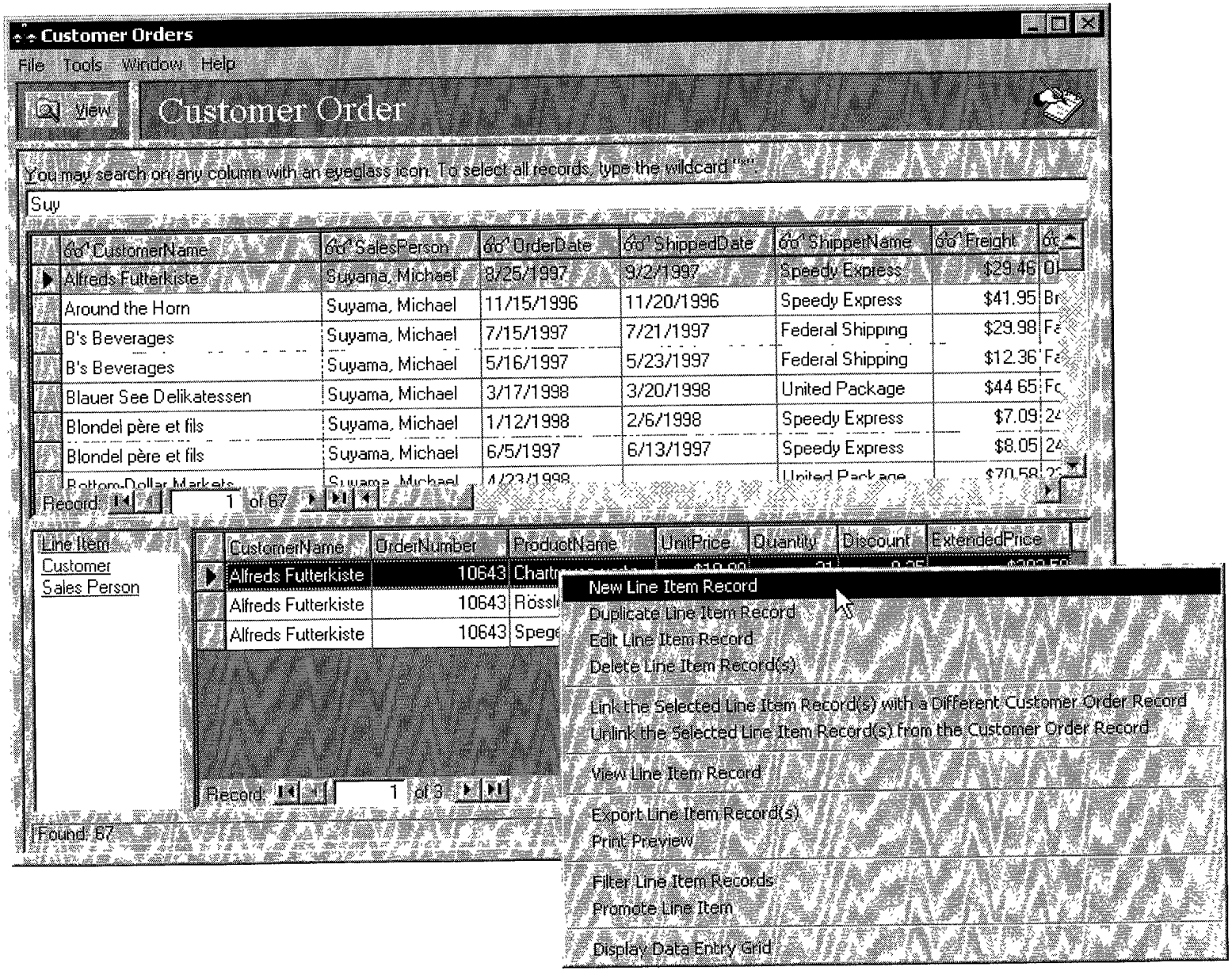

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard "%".
Suy
CustomerName | SalesPerson | OrderDate | ShippedDate | ShipperName | Freight
Alfreds Futterkiste | Suyama, Michael | 8/25/1997 | 9/2/1997 | Speedy Express | $29.46
Around the Horn | Suyama, Michael | 11/15/1996 | 11/20/1996 | Speedy Express | $41.95
B's Beverages | Suyama, Michael | 7/15/1997 | 7/21/1997 | Federal Shipping | $29.98
B's Beverages | Suyama, Michael | 5/16/1997 | 5/23/1997 | Federal Shipping | $12.36
Blauer See Delikatessen | Suyama, Michael | 3/17/1998 | 3/20/1998 | United Package | $44.65
Blondel père et fils | Suyama, Michael | 1/12/1998 | 2/6/1998 | Speedy Express | $7.09
Blondel père et fils | Suyama, Michael | 6/5/1997 | 6/13/1997 | Speedy Express | $8.05
Record: 1 of 67
Line Item
Customer
Sales Person
CustomerName | OrderNumber | ProductName | UnitPrice | Quantity | Discount | ExtendedPrice
Alfreds Futterkiste | 10643
Alfreds Futterkiste | 10643
Alfreds Futterkiste | 10643
Record: 1 of 3
Found: 67
New Line Item Record
Duplicate Line Item Record
Edit Line Item Record
Delete Line Item Record(s)
Link the Selected Line Item Record(s) with a Different Customer Order Record
Unlink the Selected Line Item Record(s) from the Customer Order Record
View Line Item Record
Export Line Item Record(s)
Print Preview
Filter Line Item Records
Promote Line Item
Display Data Entry Grid

FIG. 11

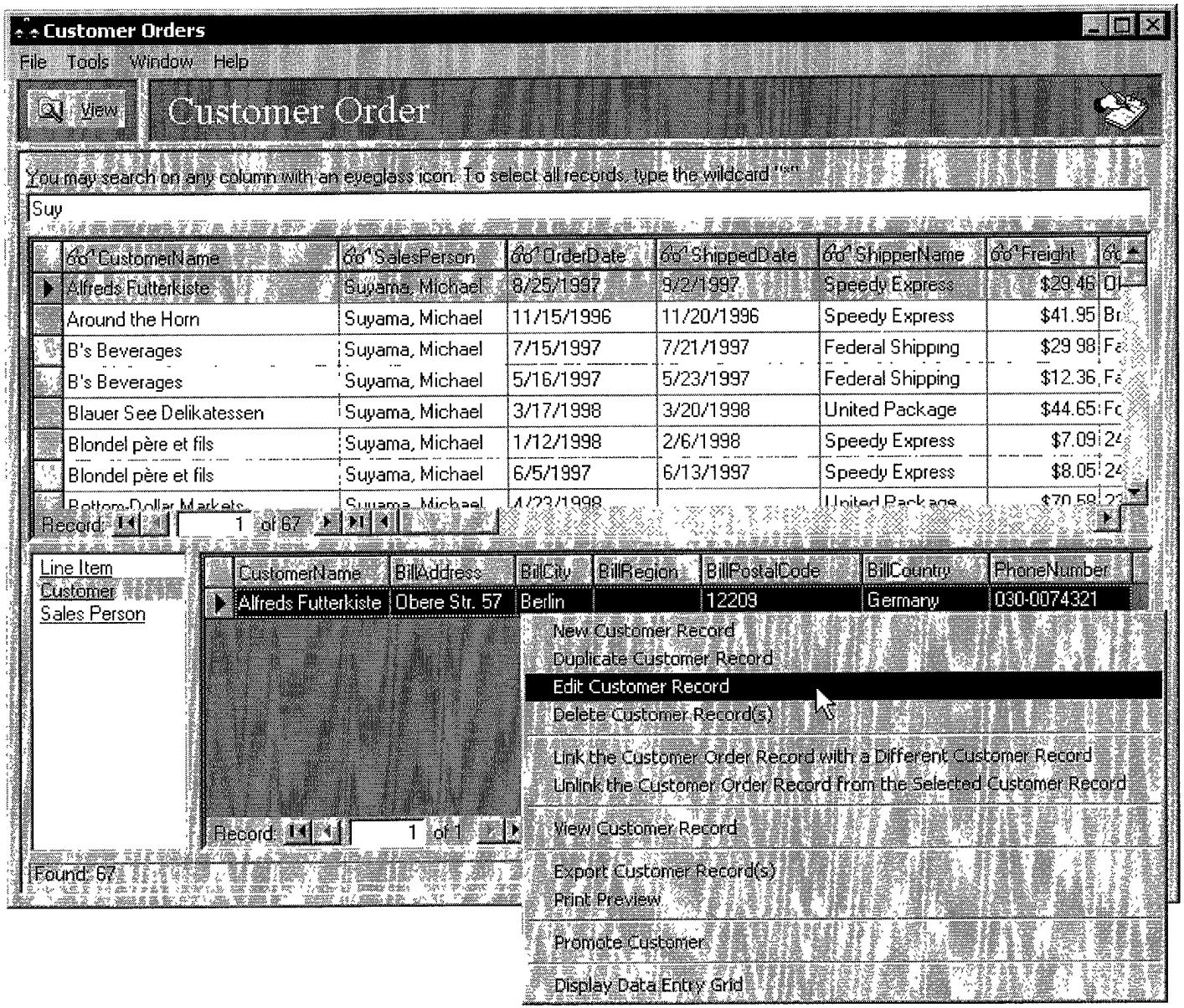

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*"
Suy
CustomerName
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
Alfreds Futterkiste Suyama, Michael 8/25/1997 9/2/1997 Speedy Express $29.46
Around the Horn Suyama, Michael 11/15/1996 11/20/1996 Speedy Express $41.95
B's Beverages Suyama, Michael 7/15/1997 7/21/1997 Federal Shipping $29.98
B's Beverages Suyama, Michael 5/16/1997 5/23/1997 Federal Shipping $12.36
Blauer See Delikatessen Suyama, Michael 3/17/1998 3/20/1998 United Package $44.65
Blondel père et fils Suyama, Michael 1/12/1998 2/6/1998 Speedy Express $7.09
Blondel père et fils Suyama, Michael 6/5/1997 6/13/1997 Speedy Express $8.05
Record: 1 of 67
Line Item
Customer
Sales Person
CustomerName BillAddress BillCity BillRegion BillPostalCode BillCountry PhoneNumber
Alfreds Futterkiste Obere Str. 57 Berlin 12209 Germany 030-0074321
Record: 1 of 1
Found: 67
New Customer Record
Duplicate Customer Record
Edit Customer Record
Delete Customer Record(s)
Link the Customer Order Record with a Different Customer Record
Unlink the Customer Order Record from the Selected Customer Record
View Customer Record
Export Customer Record(s)
Print Preview
Promote Customer
Display Data Entry Grid

FIG. 12

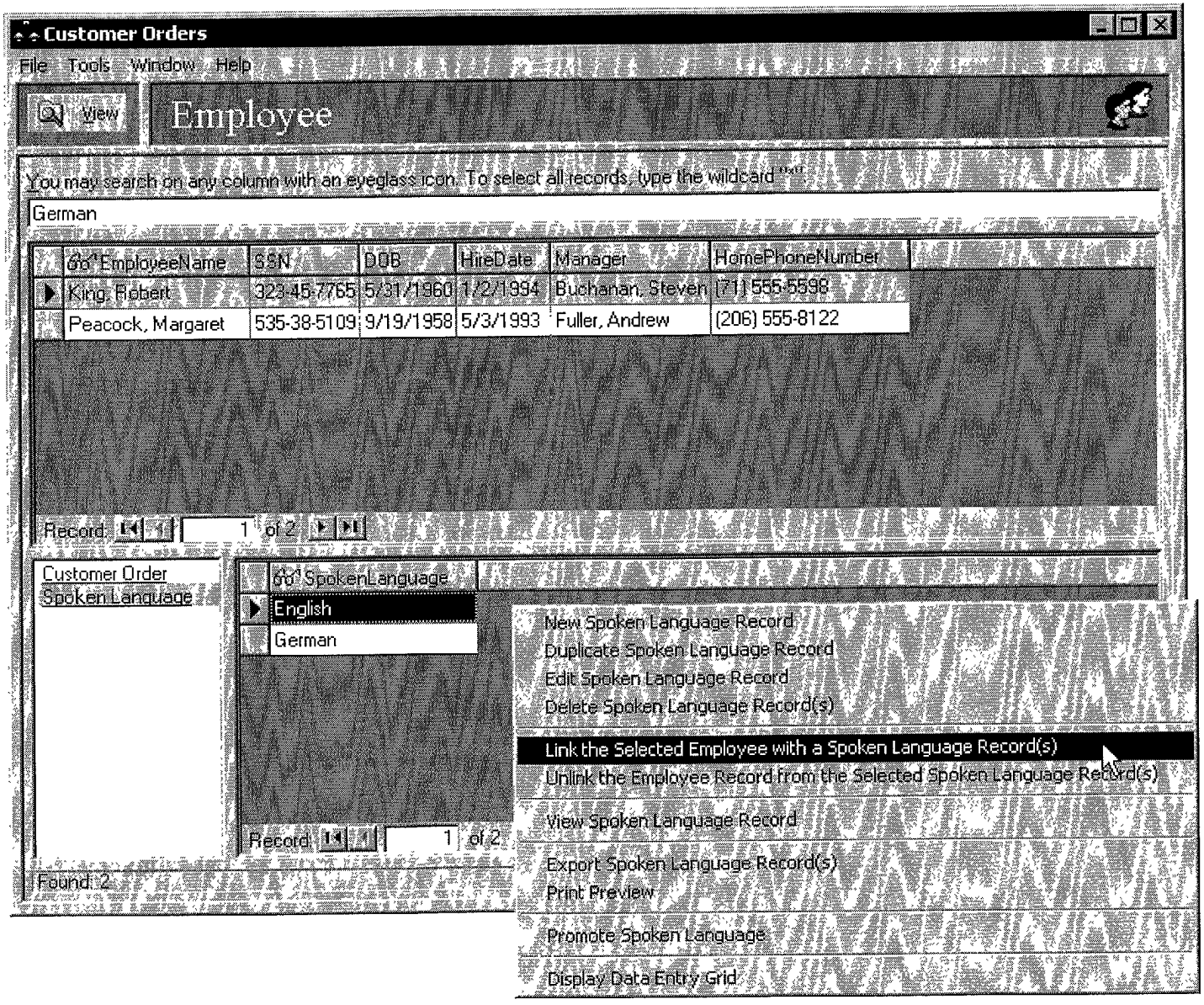

Customer Orders
File Tools Window Help
View
Employee
You may search on any column with an eyeglass icon. To select all records, type the wildcard "%".
German
EmployeeName
SSN
DOB
HireDate
Manager
HomePhoneNumber
King, Robert
323-45-7765
5/31/1960
1/2/1994
Buchanan, Steven
(71) 555-5598
Peacock, Margaret
535-38-5109
9/19/1958
5/3/1993
Fuller, Andrew
(206) 555-8122
Record: 1 of 2
Customer Order Spoken Language
SpokenLanguage
English
German
Record: 1 of 2
Found: 2
New Spoken Language Record
Duplicate Spoken Language Record
Edit Spoken Language Record
Delete Spoken Language Record(s)
Link the Selected Employee with a Spoken Language Record(s)
Unlink the Employee Record from the Selected Spoken Language Record(s)
View Spoken Language Record
Export Spoken Language Record(s)
Print Preview
Promote Spoken Language
Display Data Entry Grid

FIG. 13

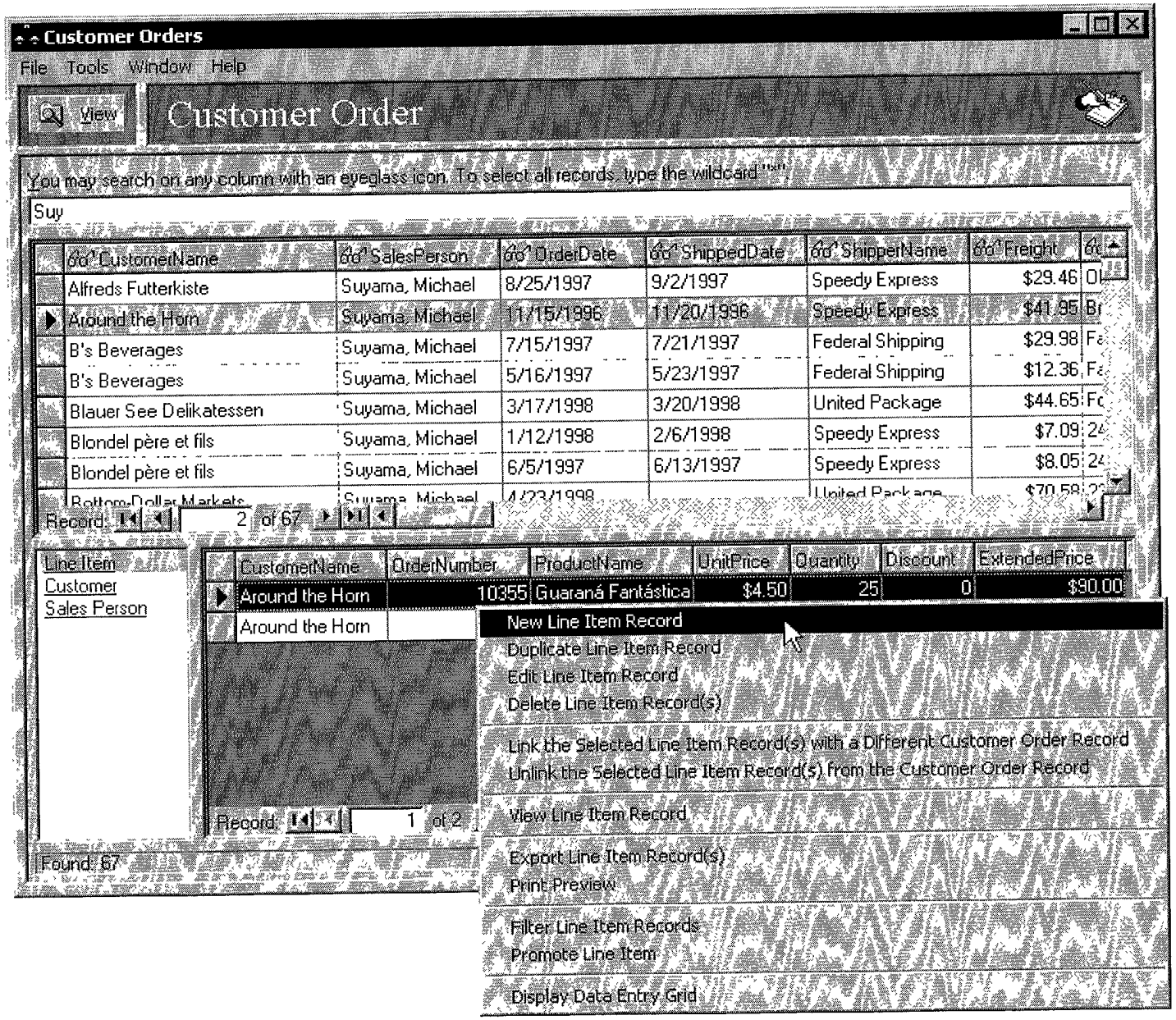

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard "%".
Suy
CustomerName
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
Alfreds Futterkiste Suyama, Michael 8/25/1997 9/2/1997 Speedy Express $29.46
Around the Horn Suyama, Michael 11/15/1996 11/20/1996 Speedy Express $41.95
B's Beverages Suyama, Michael 7/15/1997 7/21/1997 Federal Shipping $29.98
B's Beverages Suyama, Michael 5/16/1997 5/23/1997 Federal Shipping $12.36
Blauer See Delikatessen Suyama, Michael 3/17/1998 3/20/1998 United Package $44.65
Blondel père et fils Suyama, Michael 1/12/1998 2/6/1998 Speedy Express $7.09
Blondel père et fils Suyama, Michael 6/5/1997 6/13/1997 Speedy Express $8.05
Record: 2 of 67
Line Item
Customer
Sales Person
CustomerName
OrderNumber
ProductName
UnitPrice
Quantity
Discount
ExtendedPrice
Around the Horn 10355 Guaraná Fantástica $4.50 25 0 $90.00
Around the Horn
Record: 1 of 2
Found: 67
New Line Item Record
Duplicate Line Item Record
Edit Line Item Record
Delete Line Item Record(s)
Link the Selected Line Item Record(s) with a Different Customer Order Record
Unlink the Selected Line Item Record(s) from the Customer Order Record
View Line Item Record
Export Line Item Record(s)
Print Preview
Filter Line Item Records
Promote Line Item
Display Data Entry Grid

FIG. 14

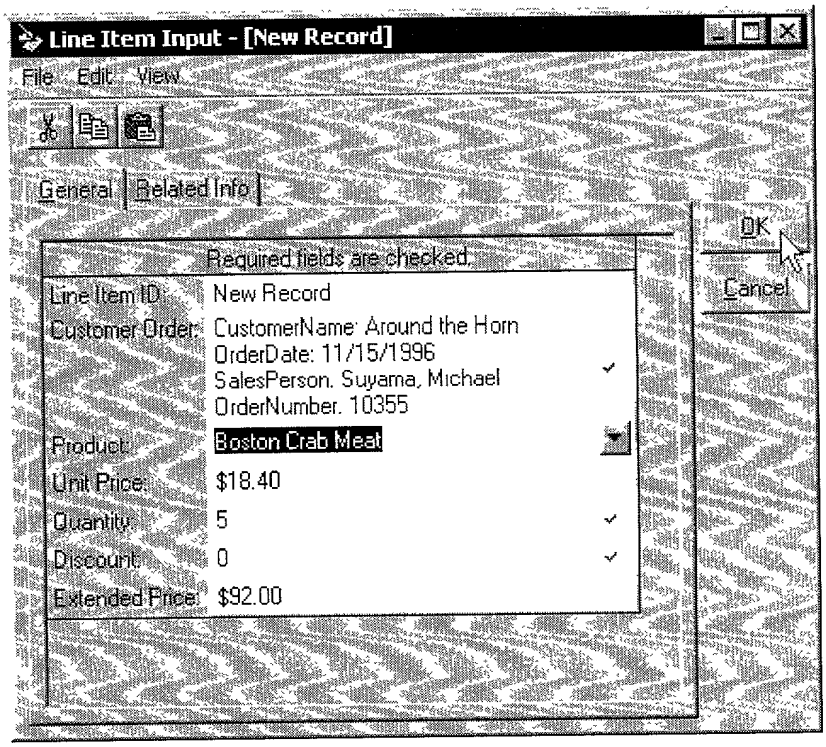

Line Item Input - [New Record]
File Edit View
General Related Info
Required fields are checked.
Line Item ID: New Record
Customer Order: CustomerName: Around the Horn
OrderDate: 11/15/1996
SalesPerson. Suyama, Michael
OrderNumber. 10355
Product: Boston Crab Meat
Unit Price: $18.40
Quantity: 5
Discount: 0
Extended Price: $92.00
OK
Cancel

FIG. 15

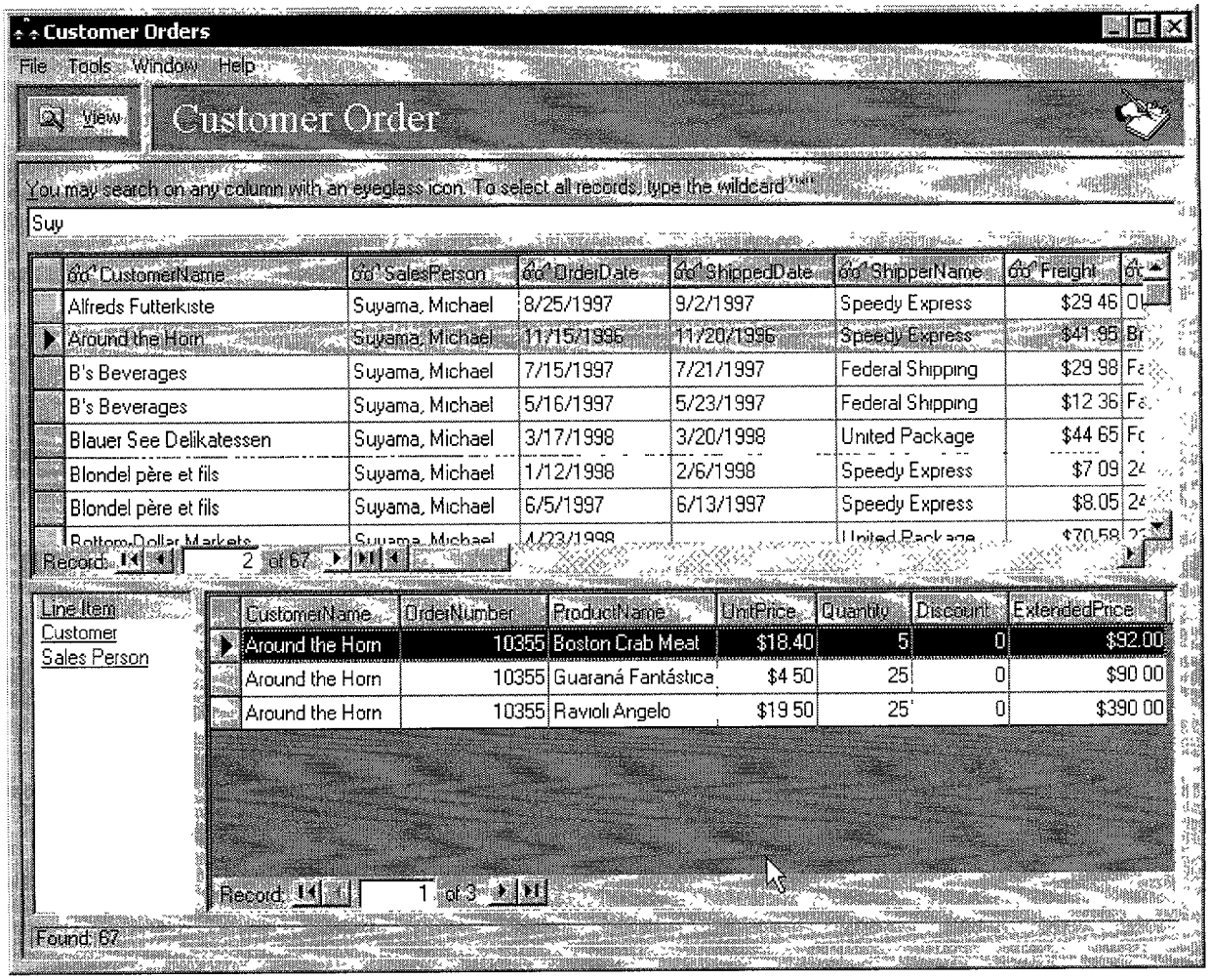

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard '*'.
Suy
CustomerName
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
Alfreds Futterkiste Suyama, Michael 8/25/1997 9/2/1997 Speedy Express $29 46
Around the Horn Suyama, Michael 11/15/1996 11/20/1996 Speedy Express $41 95
B's Beverages Suyama, Michael 7/15/1997 7/21/1997 Federal Shipping $29 98
B's Beverages Suyama, Michael 5/16/1997 5/23/1997 Federal Shipping $12 36
Blauer See Delikatessen Suyama, Michael 3/17/1998 3/20/1998 United Package $44 65
Blondel père et fils Suyama, Michael 1/12/1998 2/6/1998 Speedy Express $7 09
Blondel père et fils Suyama, Michael 6/5/1997 6/13/1997 Speedy Express $8.05
Record: 2 of 67
Line Item
Customer
Sales Person
CustomerName
OrderNumber
ProductName
UnitPrice
Quantity
Discount
ExtendedPrice
Around the Horn 10355 Boston Crab Meat $18.40 5 0 $92.00
Around the Horn 10355 Guaraná Fantástica $4 50 25 0 $90 00
Around the Horn 10355 Ravioli Angelo $19 50 25 0 $390 00
Record: 1 of 3
Found: 67

FIG. 16

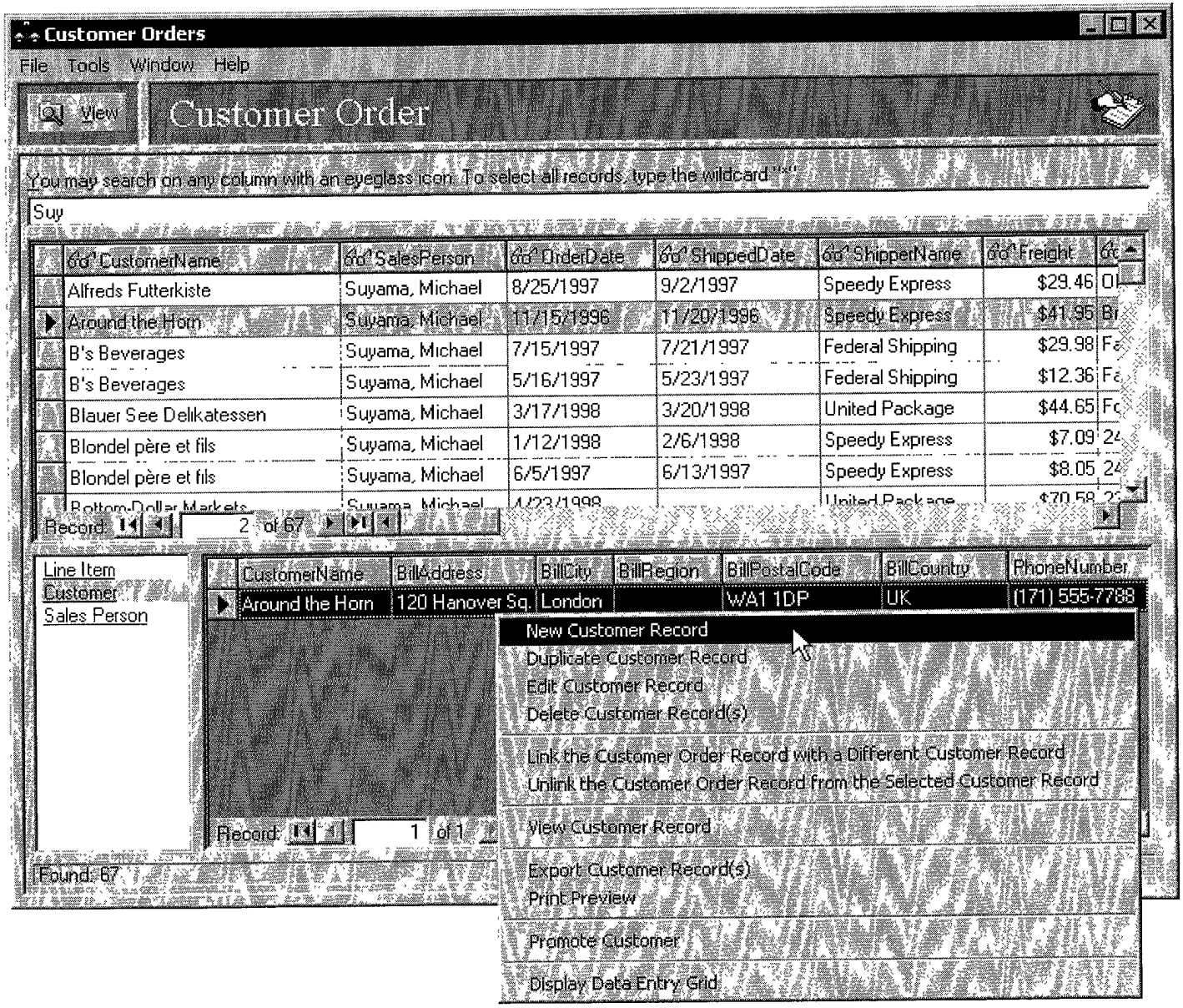

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*".
Suy
CustomerName | SalesPerson | OrderDate | ShippedDate | ShipperName | Freight
Alfreds Futterkiste | Suyama, Michael | 8/25/1997 | 9/2/1997 | Speedy Express | $29.46
Around the Horn | Suyama, Michael | 11/15/1996 | 11/20/1996 | Speedy Express | $41.95
B's Beverages | Suyama, Michael | 7/15/1997 | 7/21/1997 | Federal Shipping | $29.98
B's Beverages | Suyama, Michael | 5/16/1997 | 5/23/1997 | Federal Shipping | $12.36
Blauer See Delikatessen | Suyama, Michael | 3/17/1998 | 3/20/1998 | United Package | $44.65
Blondel père et fils | Suyama, Michael | 1/12/1998 | 2/6/1998 | Speedy Express | $7.09
Blondel père et fils | Suyama, Michael | 6/5/1997 | 6/13/1997 | Speedy Express | $8.05
Record: 2 of 67
Line Item
Customer
Sales Person
CustomerName | BillAddress | BillCity | BillRegion | BillPostalCode | BillCountry | PhoneNumber
Around the Horn | 120 Hanover Sq. | London | | WA1 1DP | UK | (171) 555-7788
Record: 1 of 1
Found: 67
New Customer Record
Duplicate Customer Record
Edit Customer Record
Delete Customer Record(s)
Link the Customer Order Record with a Different Customer Record
Unlink the Customer Order Record from the Selected Customer Record
View Customer Record
Export Customer Record(s)
Print Preview
Promote Customer
Display Data Entry Grid

FIG. 17

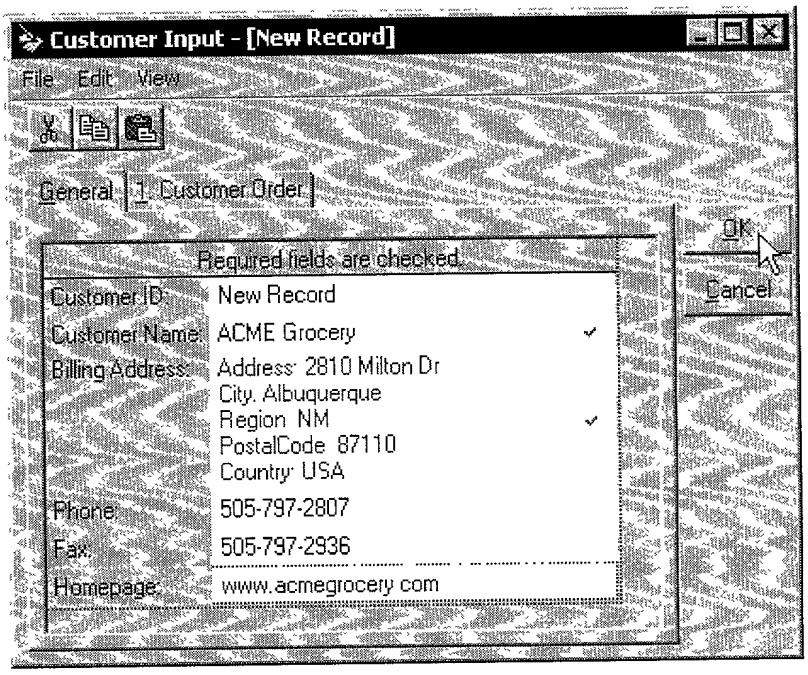

Customer Input - [New Record]
File Edit View
General 1. Customer Order
OK
Cancel
Required fields are checked.
Customer ID: New Record
Customer Name: ACME Grocery
Billing Address: Address: 2810 Milton Dr
City: Albuquerque
Region: NM
PostalCode: 87110
Country: USA
Phone: 505-797-2807
Fax: 505-797-2936
Homepage: www.acmegrocery.com

FIG. 18

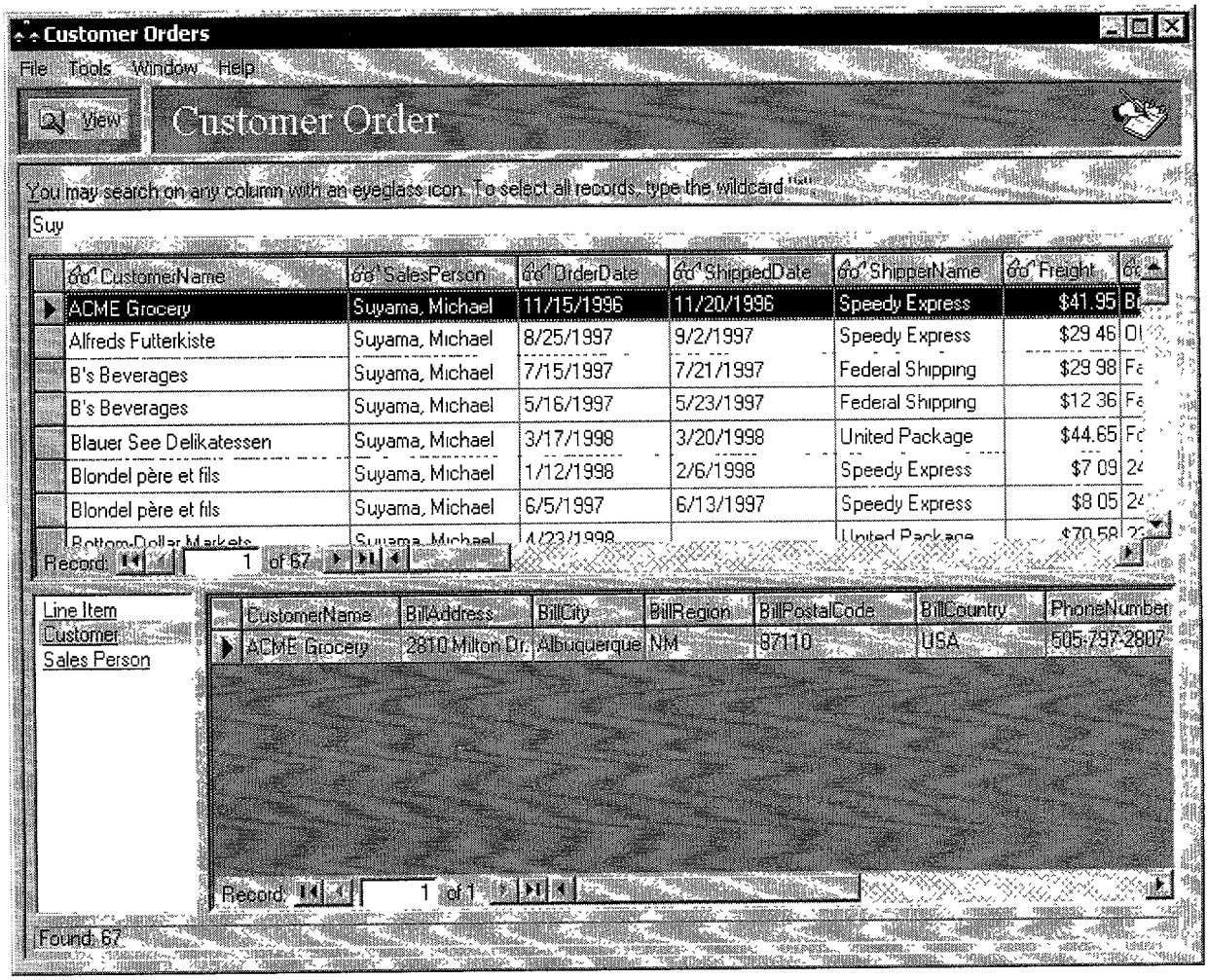

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard *.
Suy
CustomerName | SalesPerson | OrderDate | ShippedDate | ShipperName | Freight
ACME Grocery | Suyama, Michael | 11/15/1996 | 11/20/1996 | Speedy Express | $41.95
Alfreds Futterkiste | Suyama, Michael | 8/25/1997 | 9/2/1997 | Speedy Express | $29.46
B's Beverages | Suyama, Michael | 7/15/1997 | 7/21/1997 | Federal Shipping | $29.98
B's Beverages | Suyama, Michael | 5/16/1997 | 5/23/1997 | Federal Shipping | $12.36
Blauer See Delikatessen | Suyama, Michael | 3/17/1998 | 3/20/1998 | United Package | $44.65
Blondel père et fils | Suyama, Michael | 1/12/1998 | 2/6/1998 | Speedy Express | $7.09
Blondel père et fils | Suyama, Michael | 6/5/1997 | 6/13/1997 | Speedy Express | $8.05
Record: 1 of 67
Line Item
Customer
Sales Person
CustomerName | BillAddress | BillCity | BillRegion | BillPostalCode | BillCountry | PhoneNumber
ACME Grocery | 2810 Milton Dr. | Albuquerque | NM | 87110 | USA | 505-797-2807
Record: 1 of 1
Found 67

FIG. 19

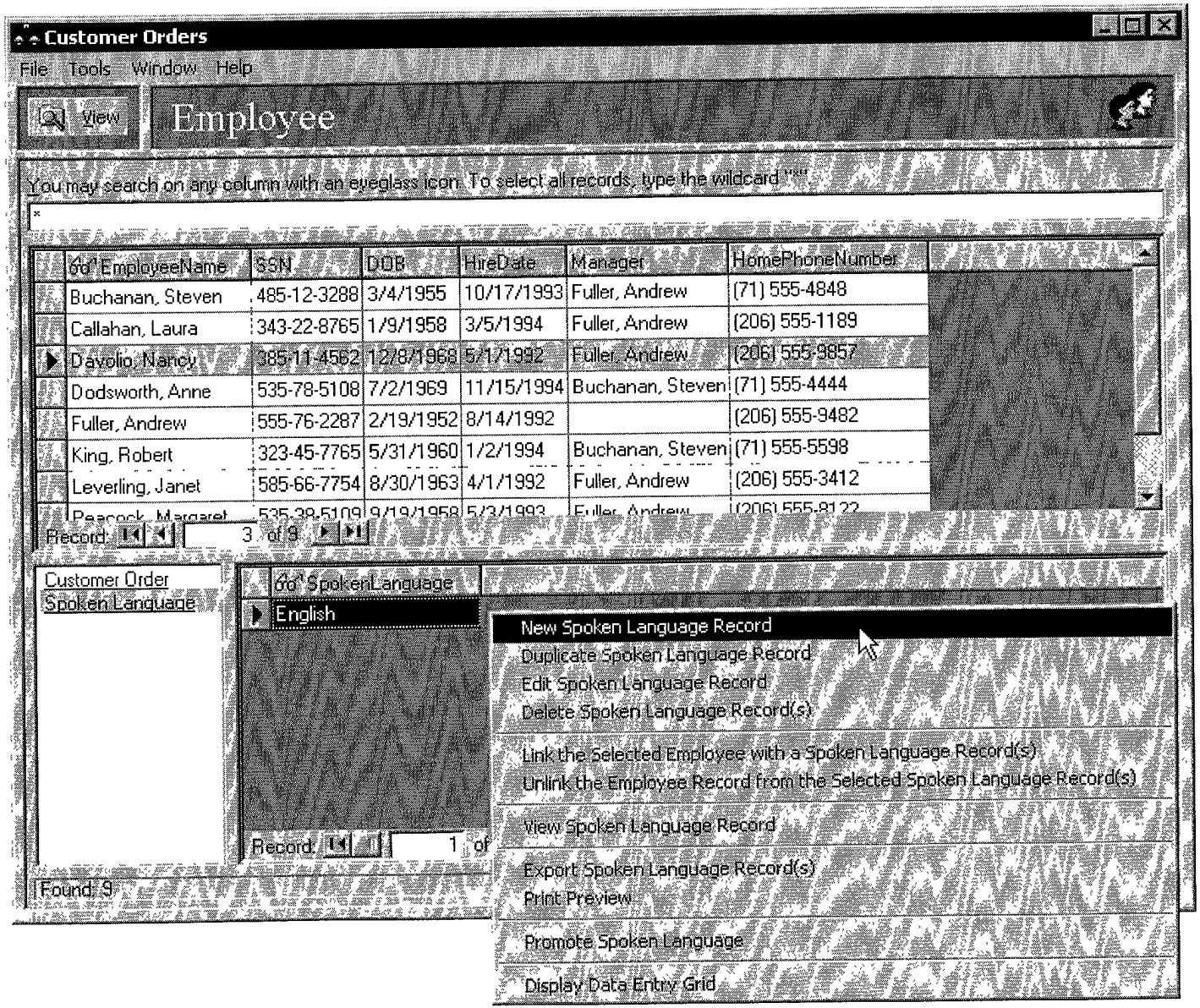

Customer Orders
File Tools Window Help
View
Employee
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*"
*
oo EmployeeName | SSN | DOB | HireDate | Manager | HomePhoneNumber
Buchanan, Steven | 485-12-3288 | 3/4/1955 | 10/17/1993 | Fuller, Andrew | (71) 555-4848
Callahan, Laura | 343-22-8765 | 1/9/1958 | 3/5/1994 | Fuller, Andrew | (206) 555-1189
Davolio, Nancy | 385-11-4562 | 12/8/1968 | 5/1/1992 | Fuller, Andrew | (206) 555-9857
Dodsworth, Anne | 535-78-5108 | 7/2/1969 | 11/15/1994 | Buchanan, Steven | (71) 555-4444
Fuller, Andrew | 555-76-2287 | 2/19/1952 | 8/14/1992 | | (206) 555-9482
King, Robert | 323-45-7765 | 5/31/1960 | 1/2/1994 | Buchanan, Steven | (71) 555-5598
Leverling, Janet | 585-66-7754 | 8/30/1963 | 4/1/1992 | Fuller, Andrew | (206) 555-3412
Peacock, Margaret
Record: 3 of 9
Customer Order
Spoken Language
oo SpokenLanguage
English
Record: 1 of
Found: 9
New Spoken Language Record
Duplicate Spoken Language Record
Edit Spoken Language Record
Delete Spoken Language Record(s)
Link the Selected Employee with a Spoken Language Record(s)
Unlink the Employee Record from the Selected Spoken Language Record(s)
View Spoken Language Record
Export Spoken Language Record(s)
Print Preview
Promote Spoken Language
Display Data Entry Grid

FIG. 20

Attorney Docket No. 17538.1

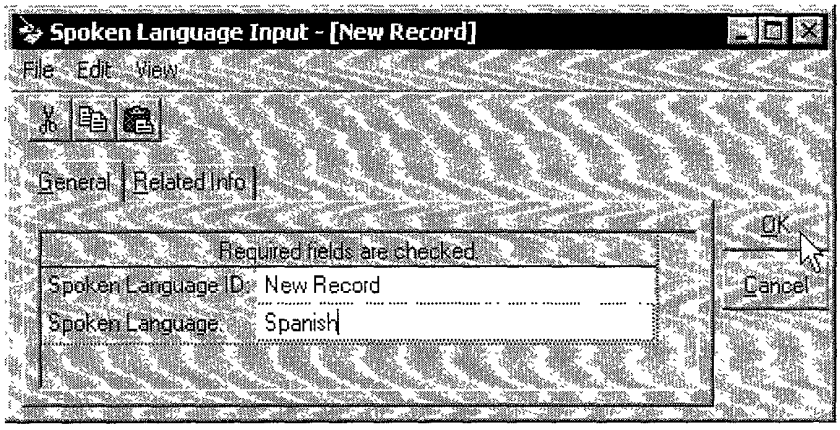


FIG. 21

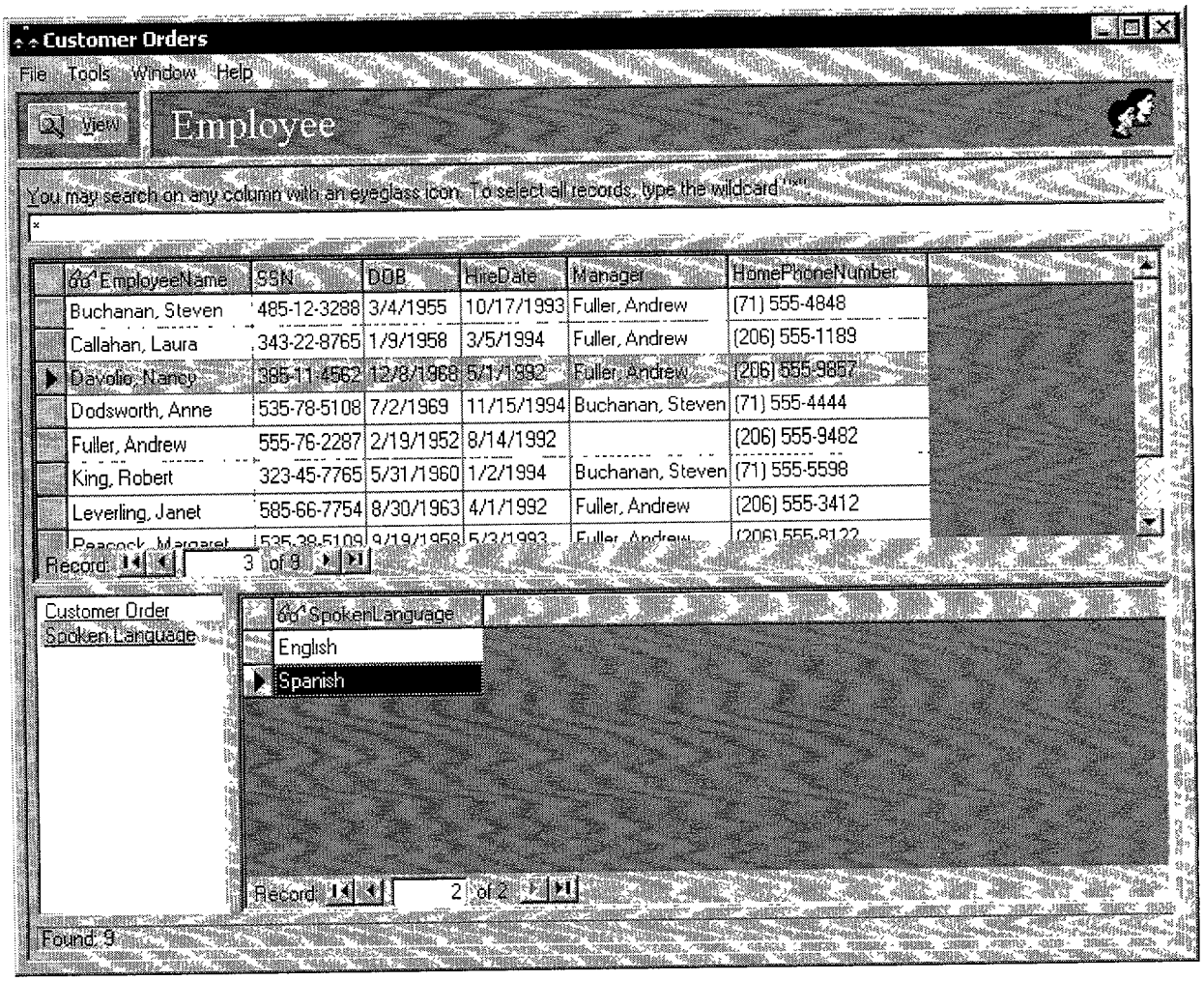

Customer Orders
File Tools Window Help
View
Employee
You may search on any column with an eyeglass icon. To select all records, type the wildcard '*'.
*
EmployeeName SSN DOB HireDate Manager HomePhoneNumber
Buchanan, Steven 485-12-3288 3/4/1955 10/17/1993 Fuller, Andrew (71) 555-4848
Callahan, Laura 343-22-8765 1/9/1958 3/5/1994 Fuller, Andrew (206) 555-1189
Davolio, Nancy 985-11-4562 12/8/1968 5/1/1992 Fuller, Andrew (206) 555-9857
Dodsworth, Anne 535-78-5108 7/2/1969 11/15/1994 Buchanan, Steven (71) 555-4444
Fuller, Andrew 555-76-2287 2/19/1952 8/14/1992 (206) 555-9482
King, Robert 323-45-7765 5/31/1960 1/2/1994 Buchanan, Steven (71) 555-5598
Leverling, Janet 585-66-7754 8/30/1963 4/1/1992 Fuller, Andrew (206) 555-3412
Record: 3 of 9
Customer Order
Spoken Language
SpokenLanguage
English
Spanish
Record: 2 of 2
Found: 9

FIG. 22

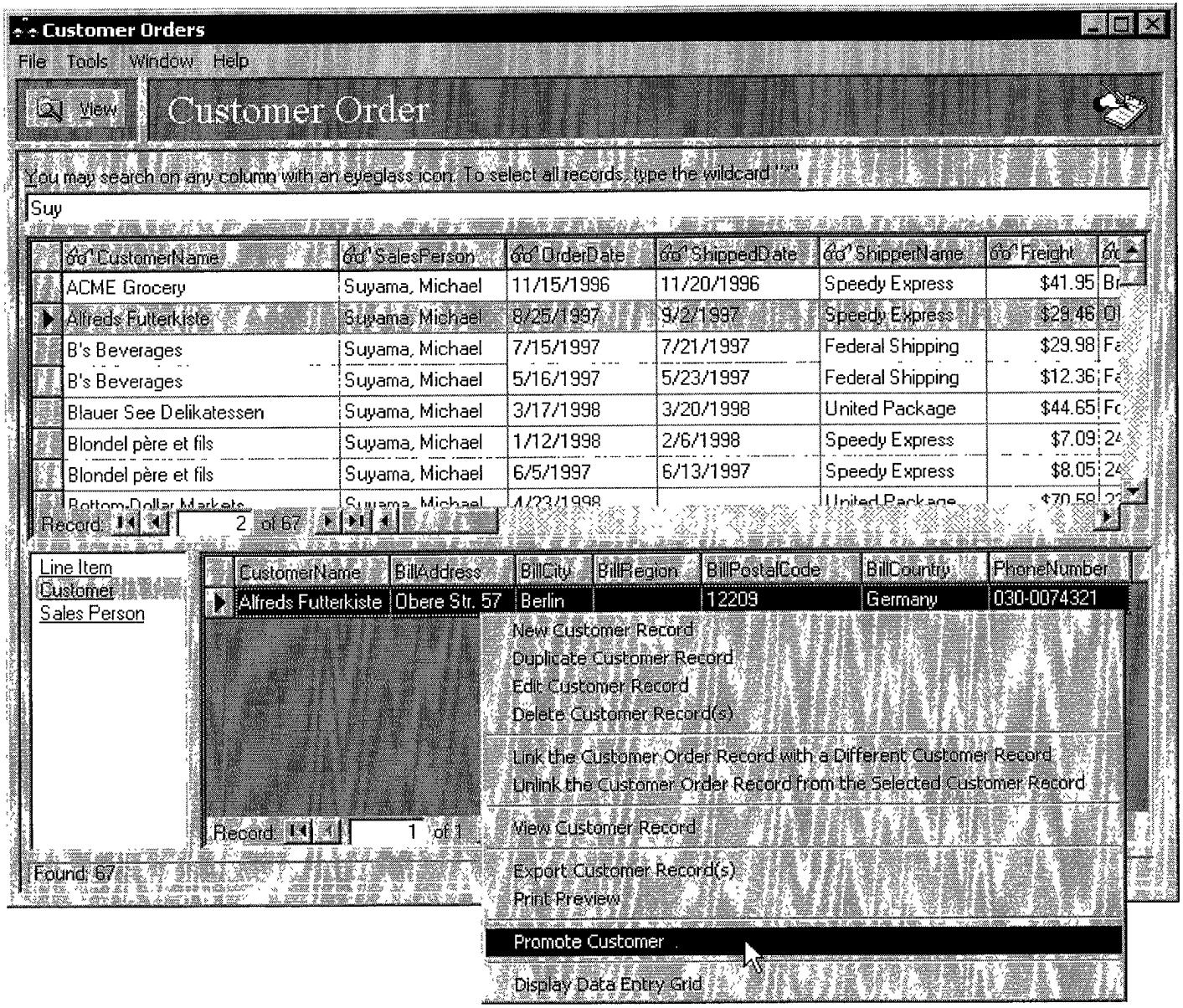

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*"
Suy
CustomerName
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
ACME Grocery Suyama, Michael 11/15/1996 11/20/1996 Speedy Express $41.95
Alfreds Futterkiste Suyama, Michael 8/25/1997 9/2/1997 Speedy Express $29.46
B's Beverages Suyama, Michael 7/15/1997 7/21/1997 Federal Shipping $29.98
B's Beverages Suyama, Michael 5/16/1997 5/23/1997 Federal Shipping $12.36
Blauer See Delikatessen Suyama, Michael 3/17/1998 3/20/1998 United Package $44.65
Blondel père et fils Suyama, Michael 1/12/1998 2/6/1998 Speedy Express $7.09
Blondel père et fils Suyama, Michael 6/5/1997 6/13/1997 Speedy Express $8.05
Record 2 of 67
Line Item
Customer
Sales Person
CustomerName BillAddress BillCity BillRegion BillPostalCode BillCountry PhoneNumber
Alfreds Futterkiste Obere Str. 57 Berlin 12209 Germany 030-0074321
Record 1 of 1
Found: 67
New Customer Record
Duplicate Customer Record
Edit Customer Record
Delete Customer Record(s)
Link the Customer Order Record with a Different Customer Record
Unlink the Customer Order Record from the Selected Customer Record
View Customer Record
Export Customer Record(s)
Print Preview
Promote Customer
Display Data Entry Grid

FIG. 23

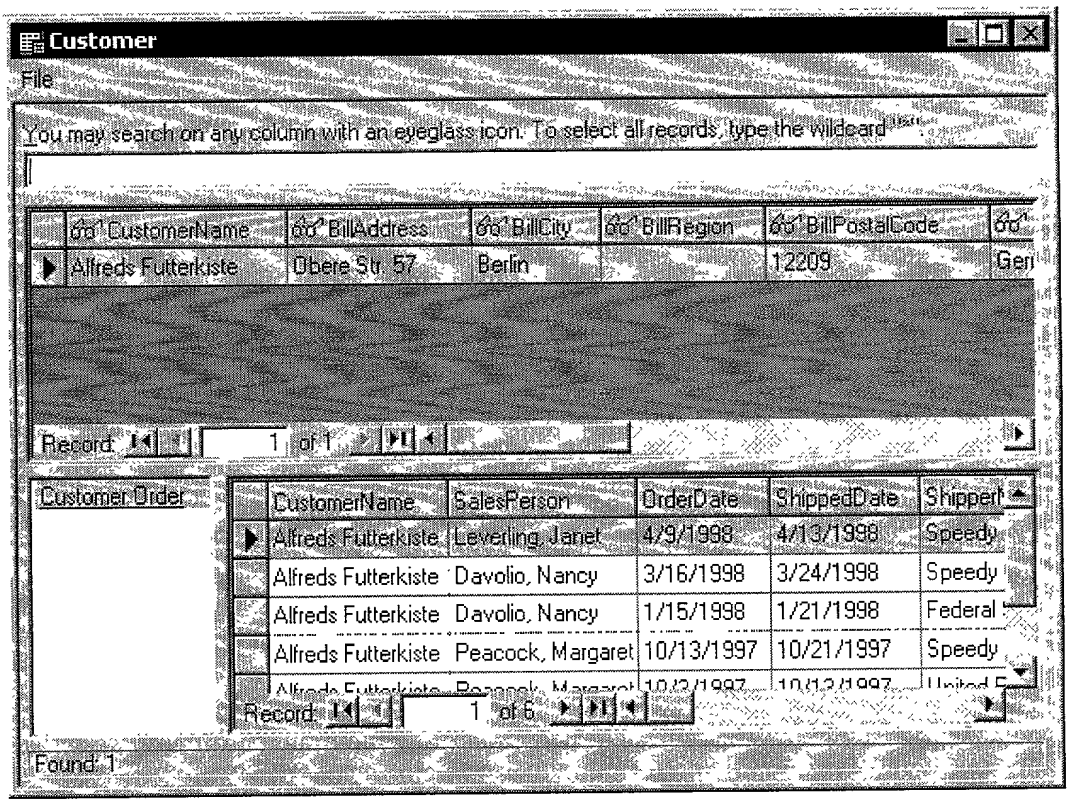

Customer
File
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*".
CustomerName
BillAddress
BillCity
BillRegion
BillPostalCode
Alfreds Futterkiste
Obere Str. 57
Berlin
12209
Record: 1 of 1
Customer Order
CustomerName
SalesPerson
OrderDate
ShippedDate
Shipperl
Alfreds Futterkiste
Leverling, Janet
4/9/1998
4/13/1998
Speedy
Alfreds Futterkiste
Davolio, Nancy
3/16/1998
3/24/1998
Speedy
Alfreds Futterkiste
Davolio, Nancy
1/15/1998
1/21/1998
Federal
Alfreds Futterkiste
Peacock, Margaret
10/13/1997
10/21/1997
Speedy
Record: 1 of 6
Found: 1

FIG. 24

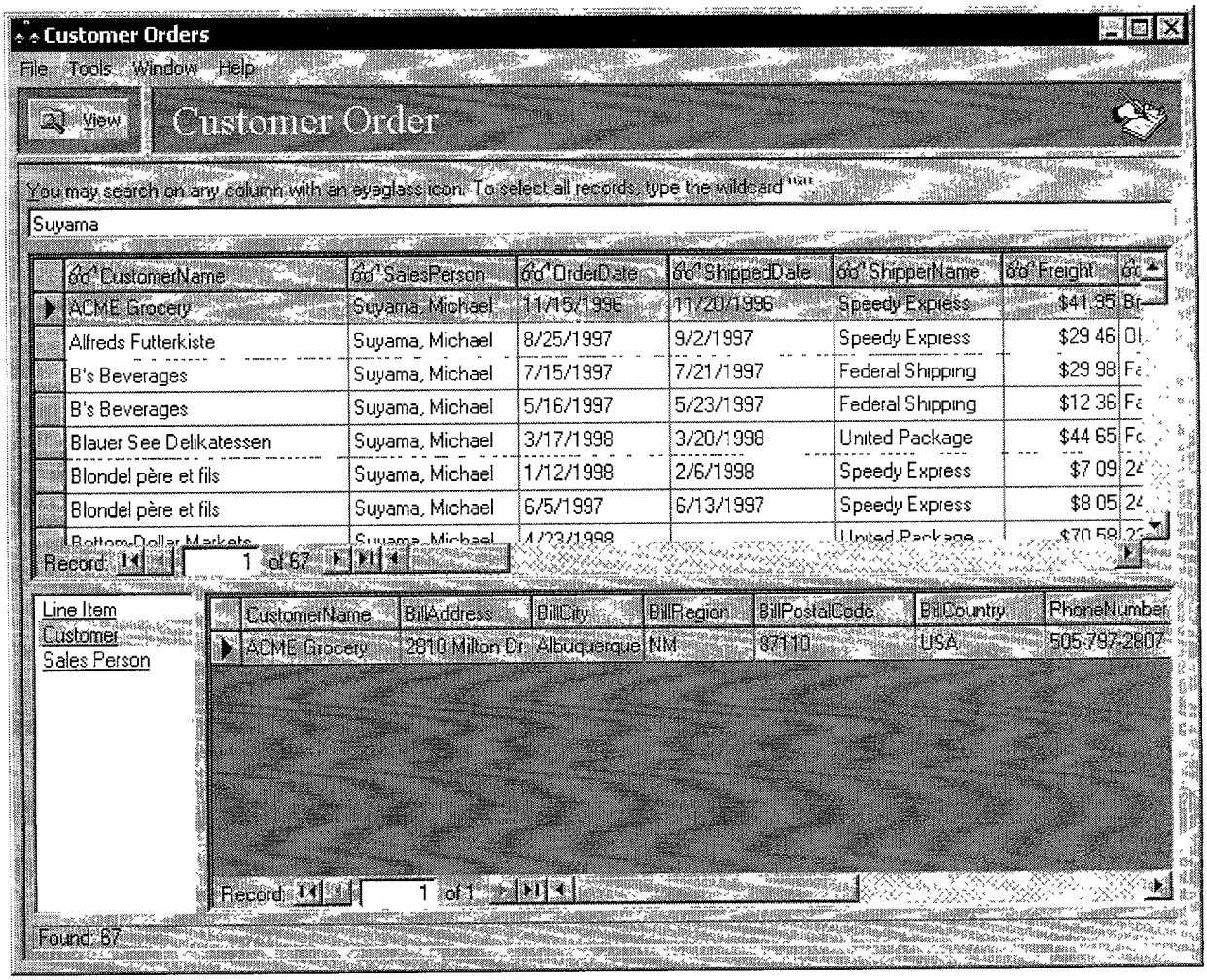

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard *
Suyama
CustomerName
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
ACME Grocery
Suyama, Michael
11/15/1996
11/20/1996
Speedy Express
$41.95
Alfreds Futterkiste
Suyama, Michael
8/25/1997
9/2/1997
Speedy Express
$29.46
B's Beverages
Suyama, Michael
7/15/1997
7/21/1997
Federal Shipping
$29.98
B's Beverages
Suyama, Michael
5/16/1997
5/23/1997
Federal Shipping
$12.36
Blauer See Delikatessen
Suyama, Michael
3/17/1998
3/20/1998
United Package
$44.65
Blondel père et fils
Suyama, Michael
1/12/1998
2/6/1998
Speedy Express
$7.09
Blondel père et fils
Suyama, Michael
6/5/1997
6/13/1997
Speedy Express
$8.05
Record: 1 of 67
Line Item
Customer
Sales Person
CustomerName
BillAddress
BillCity
BillRegion
BillPostalCode
BillCountry
PhoneNumber
ACME Grocery
2810 Milton Dr.
Albuquerque
NM
87110
USA
505-797-2807
Record: 1 of 1
Found: 67

FIG. 25

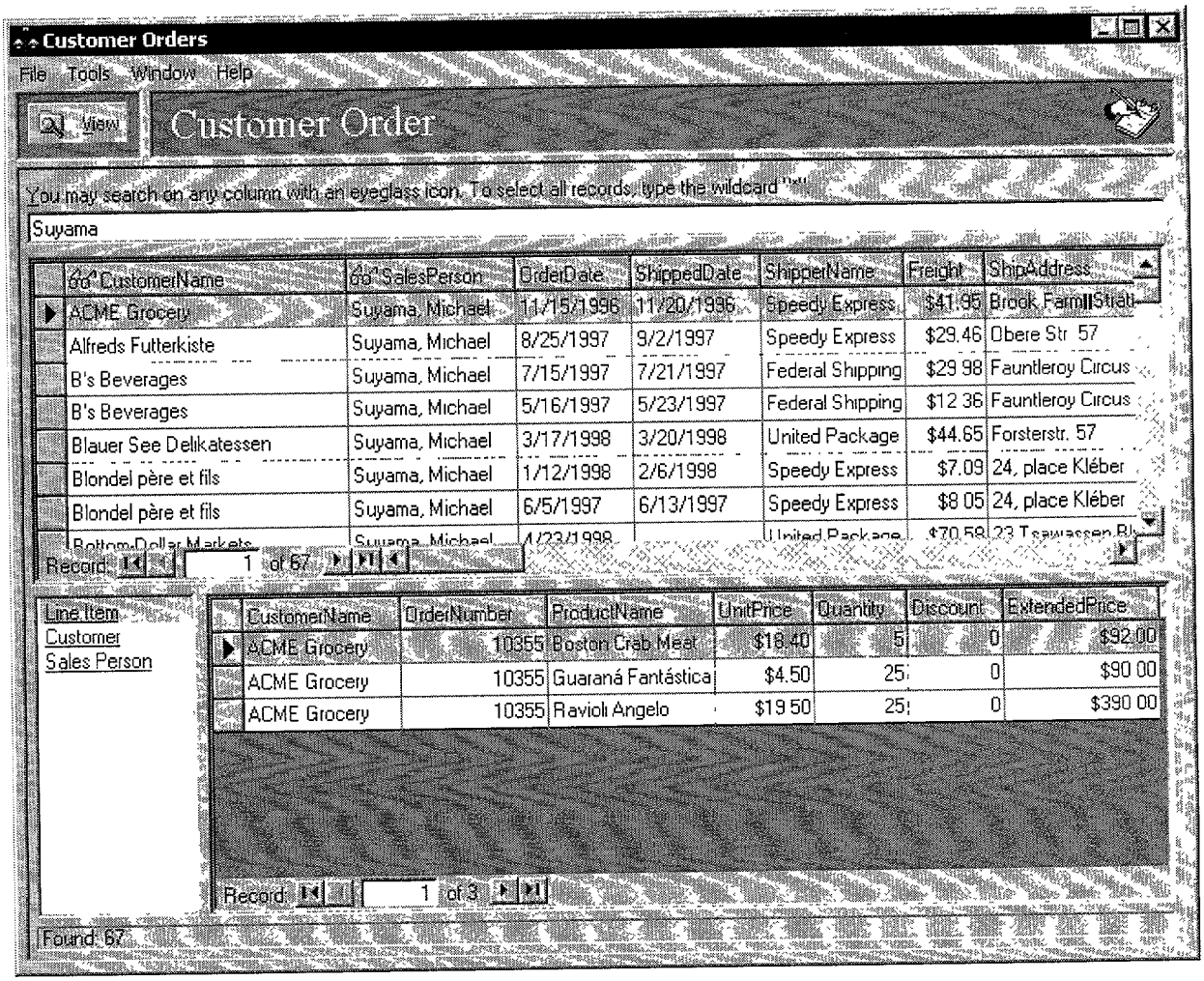

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*".
Suyama
CustomerName | SalesPerson | OrderDate | ShippedDate | ShipperName | Freight | ShipAddress
ACME Grocery | Suyama, Michael | 11/15/1996 | 11/20/1996 | Speedy Express | $41.95 | Brook Farm
Alfreds Futterkiste | Suyama, Michael | 8/25/1997 | 9/2/1997 | Speedy Express | $29.46 | Obere Str. 57
B's Beverages | Suyama, Michael | 7/15/1997 | 7/21/1997 | Federal Shipping | $29.98 | Fauntleroy Circus
B's Beverages | Suyama, Michael | 5/16/1997 | 5/23/1997 | Federal Shipping | $12.36 | Fauntleroy Circus
Blauer See Delikatessen | Suyama, Michael | 3/17/1998 | 3/20/1998 | United Package | $44.65 | Forsterstr. 57
Blondel père et fils | Suyama, Michael | 1/12/1998 | 2/6/1998 | Speedy Express | $7.09 | 24, place Kléber
Blondel père et fils | Suyama, Michael | 6/5/1997 | 6/13/1997 | Speedy Express | $8.05 | 24, place Kléber
Record: 1 of 67
Line Item
Customer
Sales Person
CustomerName | OrderNumber | ProductName | UnitPrice | Quantity | Discount | ExtendedPrice
ACME Grocery | 10355 | Boston Crab Meat | $18.40 | 5 | 0 | $92.00
ACME Grocery | 10355 | Guaraná Fantástica | $4.50 | 25 | 0 | $90.00
ACME Grocery | 10355 | Ravioli Angelo | $19.50 | 25 | 0 | $390.00
Record: 1 of 3
Found: 67

FIG. 26

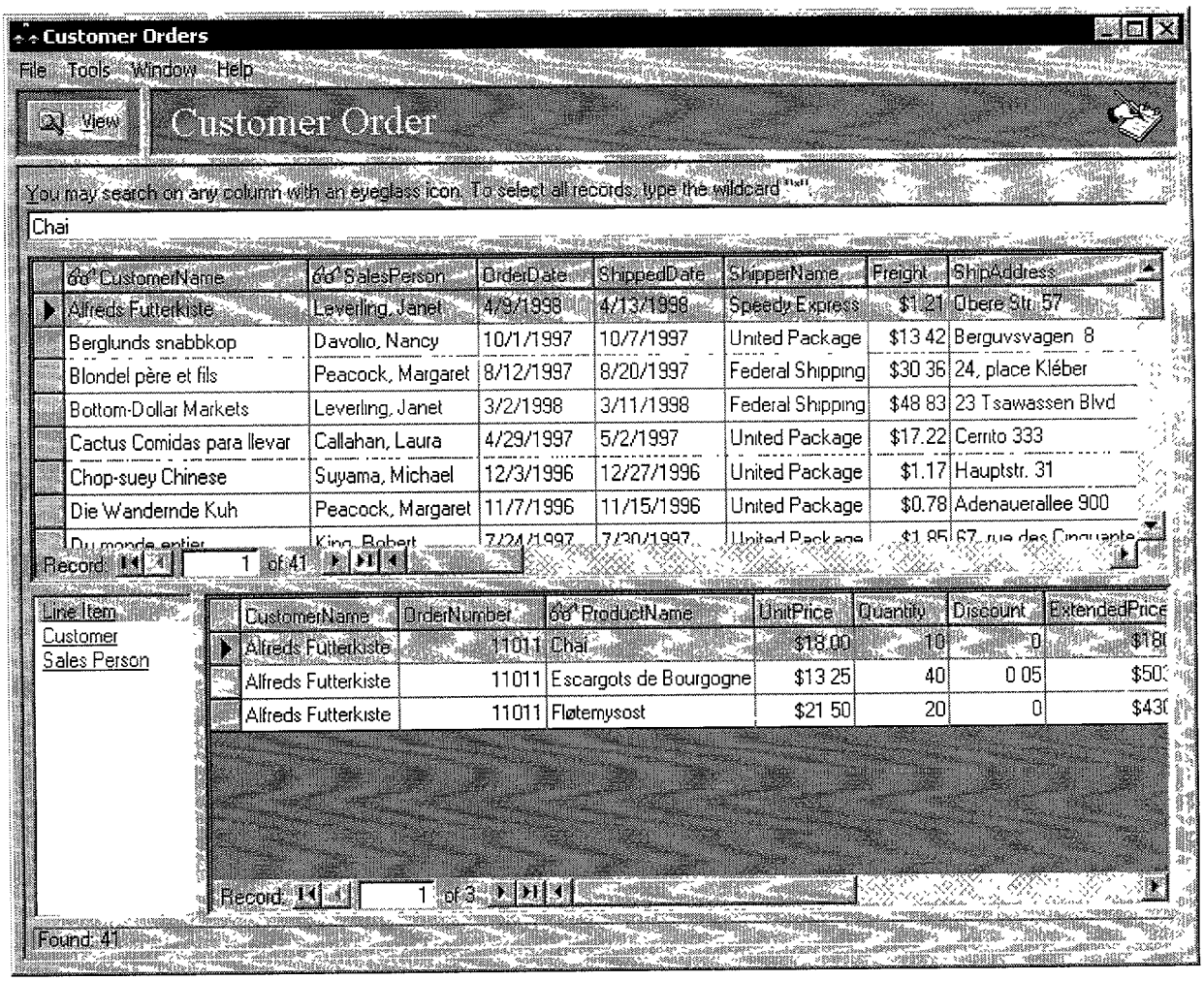

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*".
Chai
CustomerName | SalesPerson | OrderDate | ShippedDate | ShipperName | Freight | ShipAddress
Alfreds Futterkiste | Leverling, Janet | 4/9/1998 | 4/13/1998 | Speedy Express | $1.21 | Obere Str. 57
Berglunds snabbkop | Davolio, Nancy | 10/1/1997 | 10/7/1997 | United Package | $13.42 | Berguvsvagen 8
Blondel père et fils | Peacock, Margaret | 8/12/1997 | 8/20/1997 | Federal Shipping | $30.36 | 24, place Kléber
Bottom-Dollar Markets | Leverling, Janet | 3/2/1998 | 3/11/1998 | Federal Shipping | $48.83 | 23 Tsawassen Blvd
Cactus Comidas para llevar | Callahan, Laura | 4/29/1997 | 5/2/1997 | United Package | $17.22 | Cerrito 333
Chop-suey Chinese | Suyama, Michael | 12/3/1996 | 12/27/1996 | United Package | $1.17 | Hauptstr. 31
Die Wandernde Kuh | Peacock, Margaret | 11/7/1996 | 11/15/1996 | United Package | $0.78 | Adenauerallee 900
Record: 1 of 41
Line Item
Customer
Sales Person
CustomerName | OrderNumber | ProductName | UnitPrice | Quantity | Discount | ExtendedPrice
Alfreds Futterkiste | 11011 | Chai | $18.00 | 10 | 0 | $18(
Alfreds Futterkiste | 11011 | Escargots de Bourgogne | $13.25 | 40 | 0.05 | $503
Alfreds Futterkiste | 11011 | Fløtemysost | $21.50 | 20 | 0 | $43(
Record: 1 of 3
Found: 41

FIG. 27

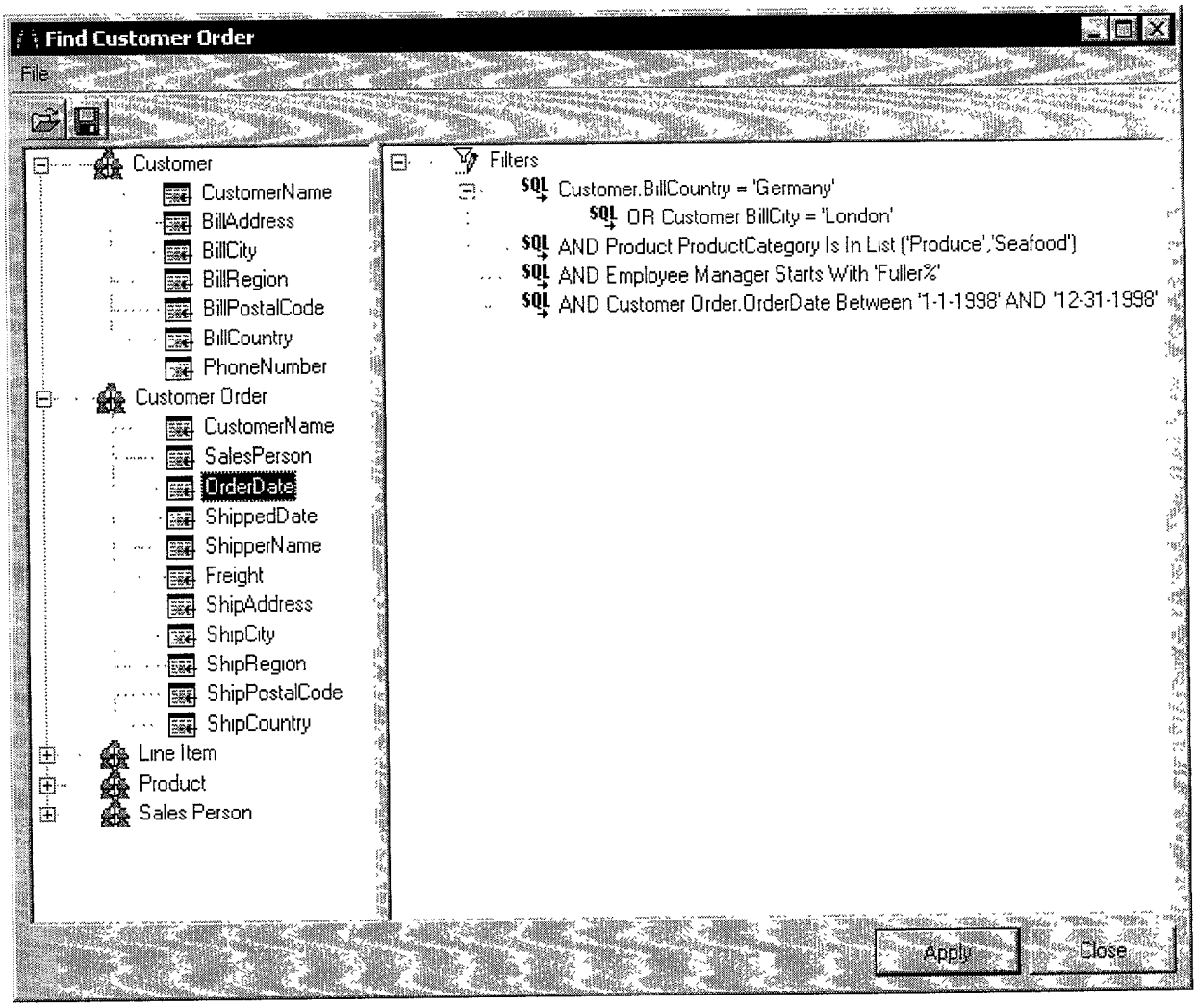

Find Customer Order
File
Customer
CustomerName
BillAddress
BillCity
BillRegion
BillPostalCode
BillCountry
PhoneNumber
Customer Order
CustomerName
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
ShipAddress
ShipCity
ShipRegion
ShipPostalCode
ShipCountry
Line Item
Product
Sales Person
Filters
SQL Customer.BillCountry = 'Germany'
SQL OR Customer.BillCity = 'London'
SQL AND Product.ProductCategory Is In List ('Produce','Seafood')
SQL AND Employee.Manager Starts With 'Fuller%'
SQL AND Customer Order.OrderDate Between '1-1-1998' AND '12-31-1998'
Apply
Close

FIG. 28

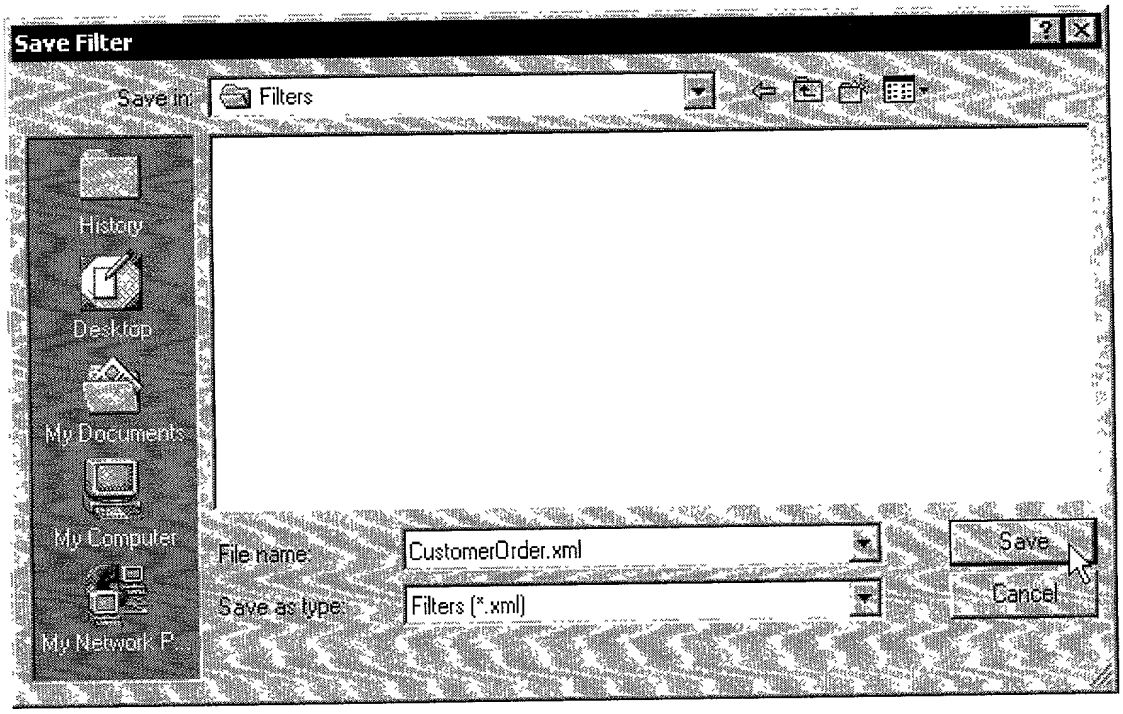

Save Filter
Save in:
Filters
History
Desktop
My Documents
My Computer
My Network P...
File name:
CustomerOrder.xml
Save as type:
Filters (*.xml)
Save
Cancel

FIG. 29

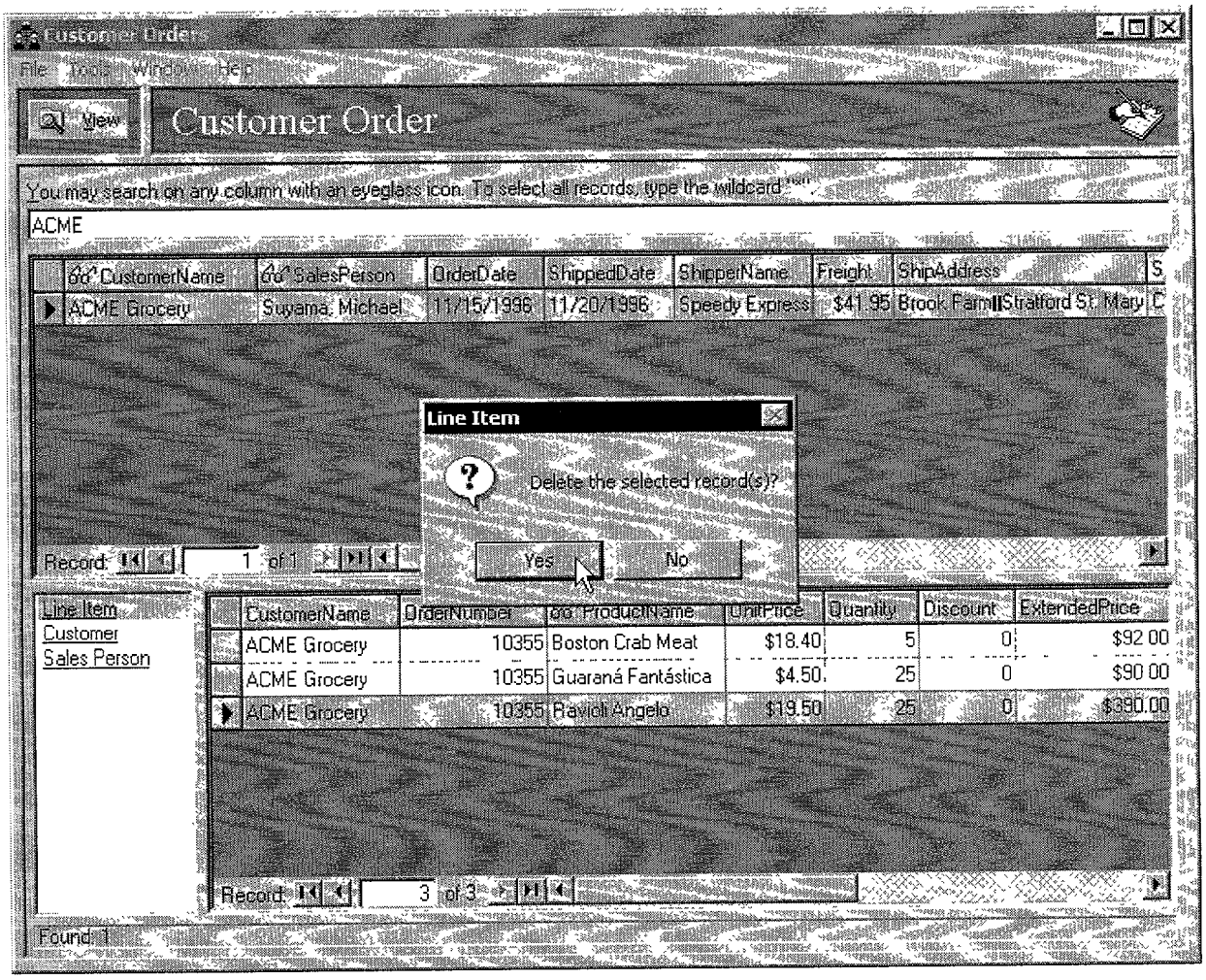

Customer Order
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*".
ACME
CustomerName
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
ShipAddress
ACME Grocery
Suyama, Michael
11/15/1996
11/20/1996
Speedy Express
$41.95
Brook Farm Stratford St. Mary
Record: 1 of 1
Line Item
Delete the selected record(s)?
Yes
No
Line Item
Customer
Sales Person
CustomerName
OrderNumber
ProductName
UnitPrice
Quantity
Discount
ExtendedPrice
ACME Grocery 10355 Boston Crab Meat $18.40 5 0 $92.00
ACME Grocery 10355 Guaraná Fantástica $4.50 25 0 $90.00
ACME Grocery 10355 Ravioli Angelo $19.50 25 0 $390.00
Record: 3 of 3
Found: 1

FIG. 30

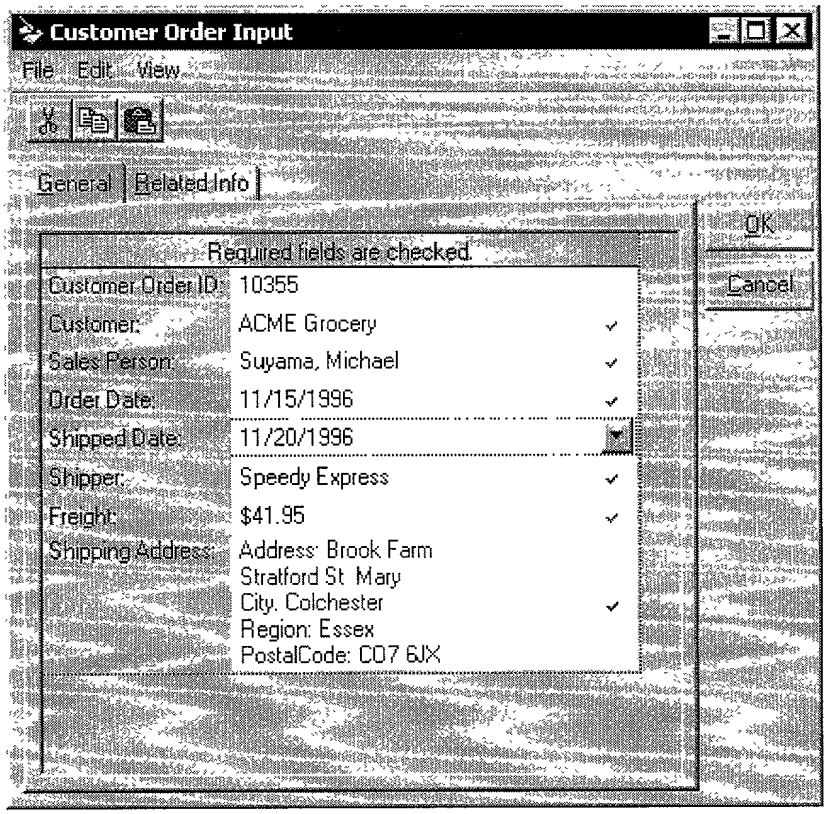

Customer Order Input
File Edit View
General Related Info
OK
Cancel
Required fields are checked.
Customer Order ID: 10355
Customer: ACME Grocery
Sales Person: Suyama, Michael
Order Date: 11/15/1996
Shipped Date: 11/20/1996
Shipper: Speedy Express
Freight: $41.95
Shipping Address: Address: Brook Farm
Stratford St Mary
City: Colchester
Region: Essex
PostalCode: CO7 6JX

FIG. 31

Data Entry Control Decision Flowchart

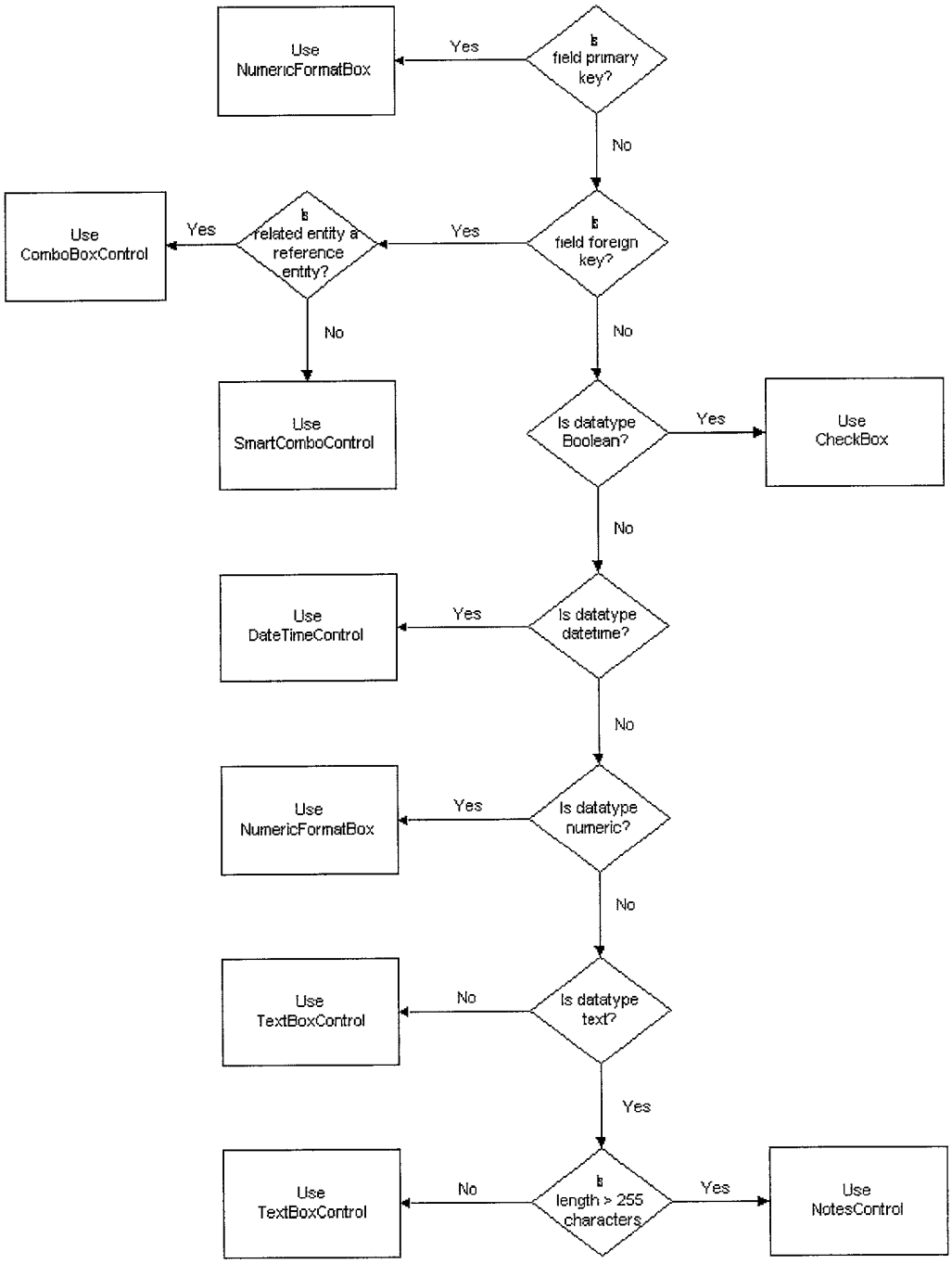


FIG. 32

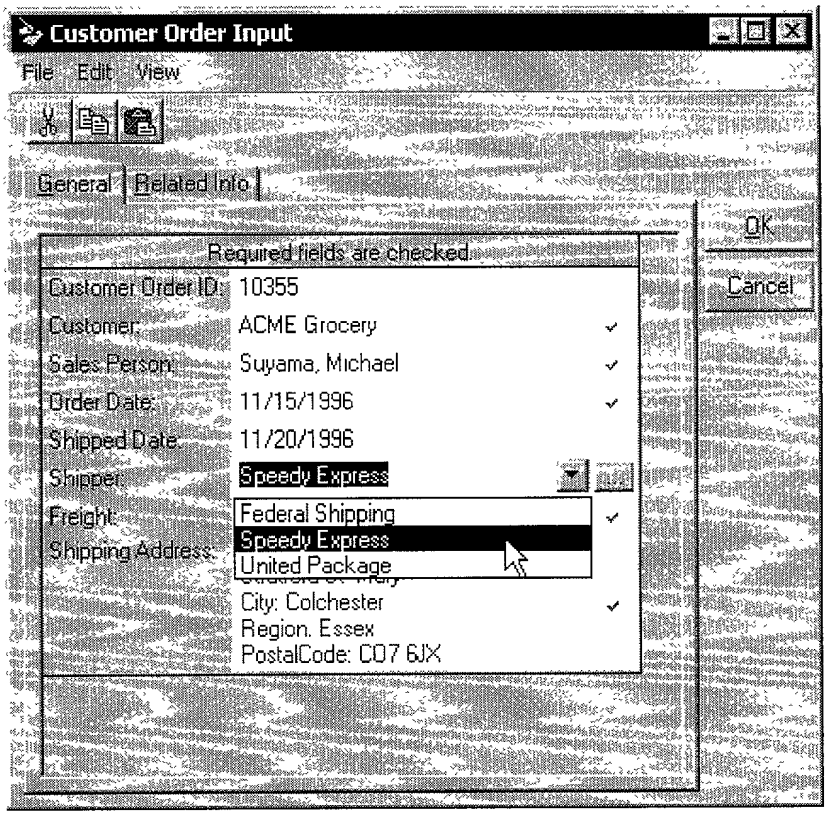

Customer Order Input
File Edit View
General Related Info
OK
Cancel
Required fields are checked
Customer Order ID: 10355
Customer: ACME Grocery
Sales Person: Suyama, Michael
Order Date: 11/15/1996
Shipped Date: 11/20/1996
Shipper: Speedy Express
Freight:
Shipping Address:
Federal Shipping
Speedy Express
United Package
City: Colchester
Region: Essex
PostalCode: CO7 6JX

FIG. 33

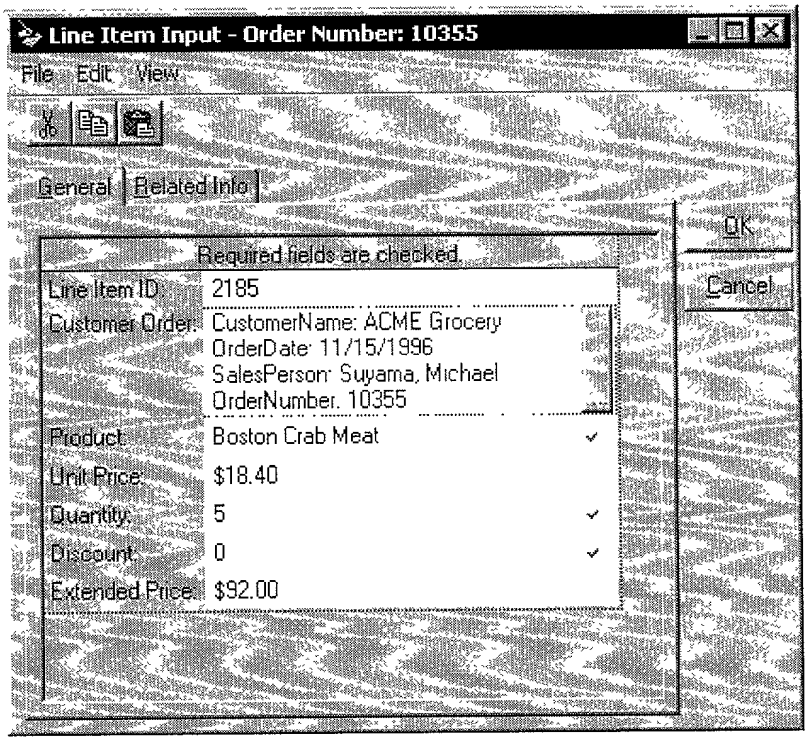

Line Item Input - Order Number: 10355
File Edit View
General Related Info
OK
Cancel
Required fields are checked
Line Item ID: 2185
Customer Order: CustomerName: ACME Grocery
OrderDate: 11/15/1996
SalesPerson: Suyama, Michael
OrderNumber: 10355
Product: Boston Crab Meat
Unit Price: $18.40
Quantity: 5
Discount: 0
Extended Price: $92.00

FIG. 34

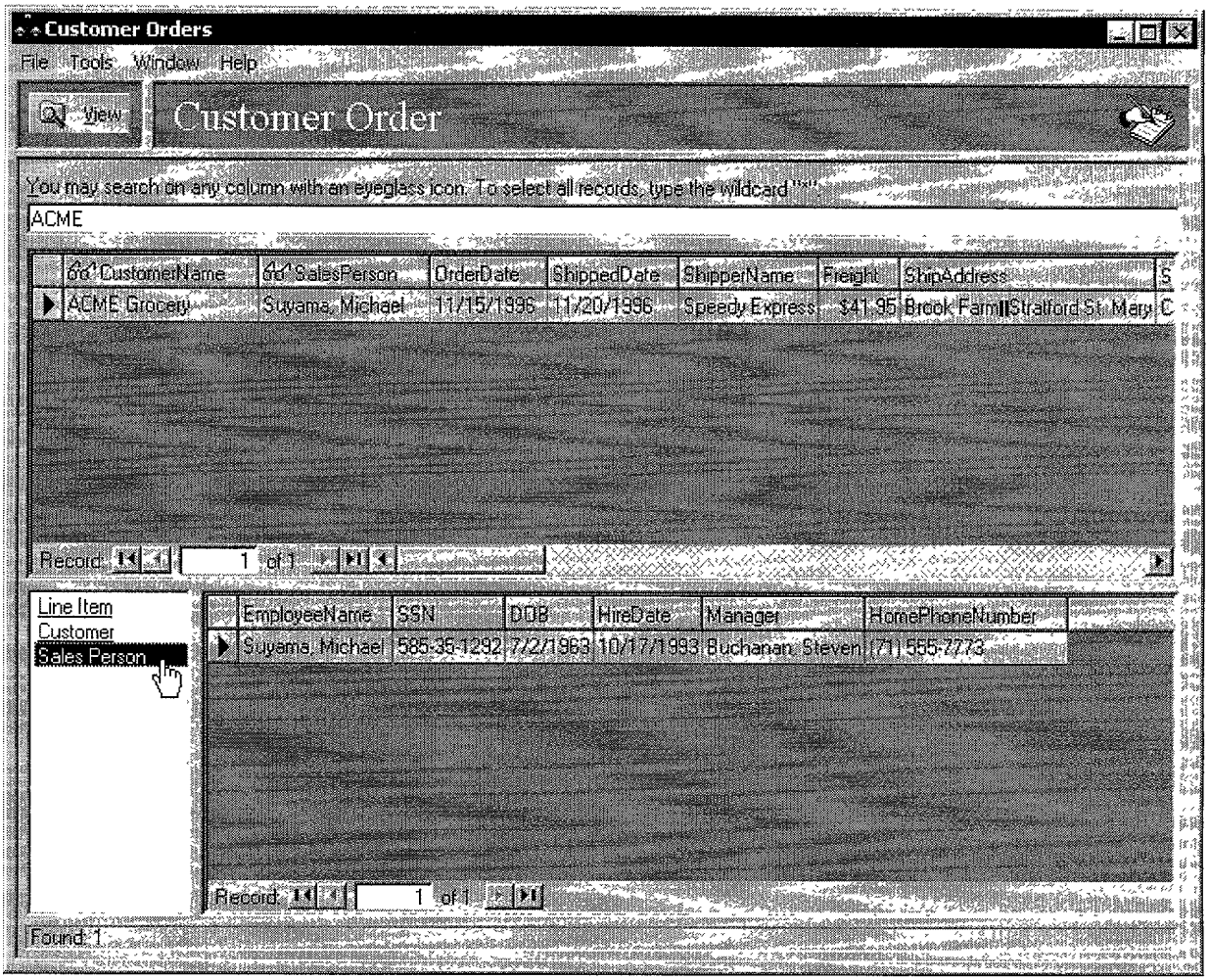

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*".
ACME
CustomerName
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
ShipAddress
ACME Grocery
Suyama, Michael
11/15/1996
11/20/1996
Speedy Express
$41.95
Brook Farm\Stratford St. Mary
Record: 1 of 1
Line Item
Customer
Sales Person
EmployeeName
SSN
DOB
HireDate
Manager
HomePhoneNumber
Suyama, Michael
585-35-1292
7/2/1963
10/17/1993
Buchanan, Steven
(71) 555-7773
Record: 1 of 1
Found: 1

FIG. 35

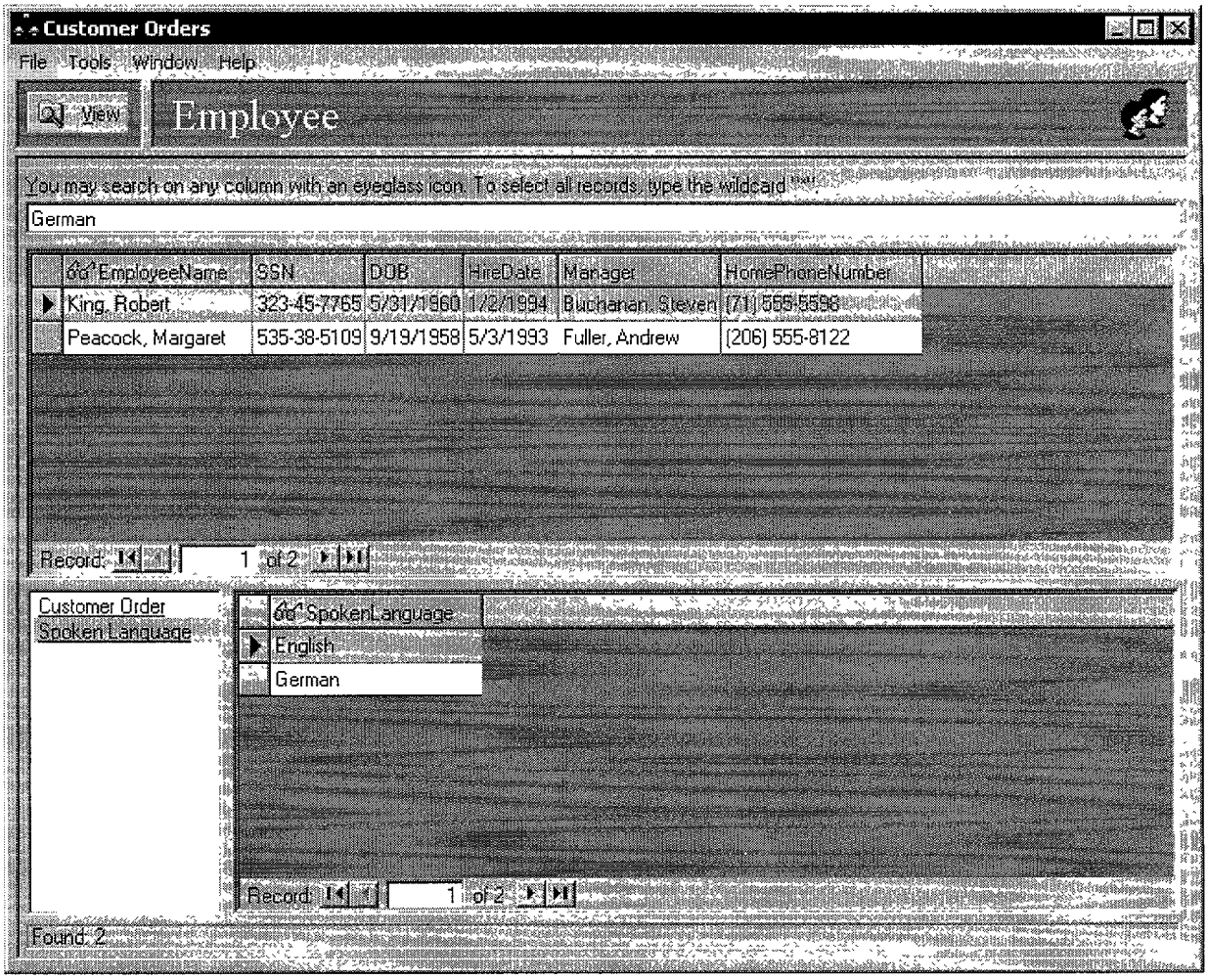

Customer Orders
File Tools Window Help
View
Employee
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*".
German
EmployeeName
SSN
DOB
HireDate
Manager
HomePhoneNumber
King, Robert
323-45-7765
5/31/1960
1/2/1994
Buchanan, Steven
(71) 555-5596
Peacock, Margaret
535-38-5109
9/19/1958
5/3/1993
Fuller, Andrew
(206) 555-8122
Record: 1 of 2
Customer Order
Spoken Language
SpokenLanguage
English
German
Record: 1 of 2
Found: 2

FIG. 36

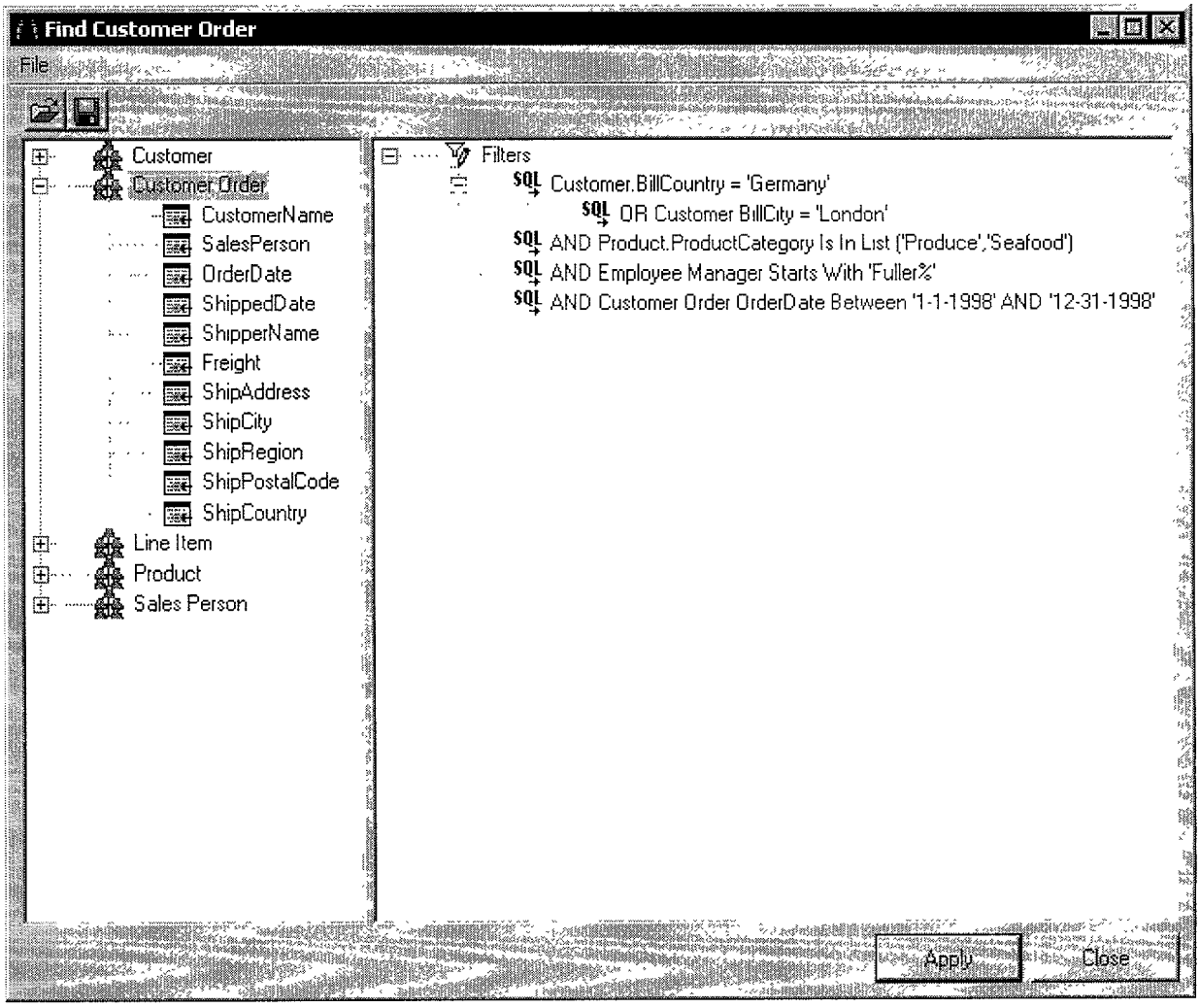

Find Customer Order
File
Customer
Customer Order
CustomerName
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
ShipAddress
ShipCity
ShipRegion
ShipPostalCode
ShipCountry
Line Item
Product
Sales Person
Filters
Customer.BillCountry = 'Germany'
OR Customer BillCity = 'London'
AND Product.ProductCategory Is In List ('Produce','Seafood')
AND Employee Manager Starts With 'Fuller%'
AND Customer Order OrderDate Between '1-1-1998' AND '12-31-1998'
Apply
Close

FIG. 37

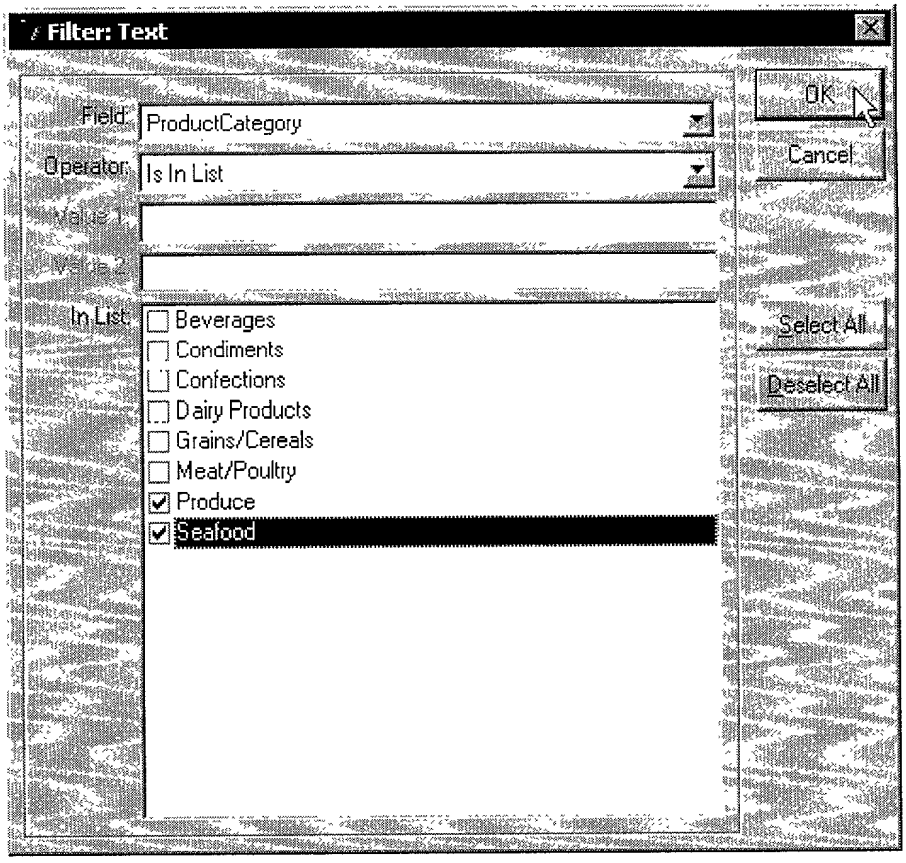

Filter: Text
Field:
ProductCategory
Operator:
Is In List
Value 1:
Value 2:
In List:
Beverages
Condiments
Confections
Dairy Products
Grains/Cereals
Meat/Poultry
Produce
Seafood
OK
Cancel
Select All
Deselect All

FIG. 38

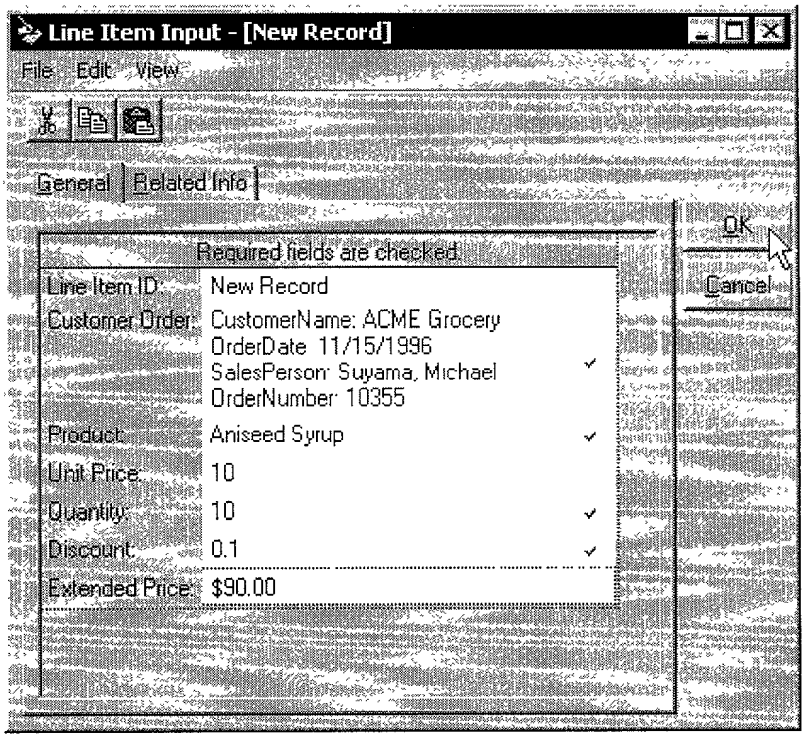

Line Item Input - [New Record]
File Edit View
General Related Info
OK
Cancel
Required fields are checked.
Line Item ID: New Record
Customer Order: CustomerName: ACME Grocery
OrderDate: 11/15/1996
SalesPerson: Suyama, Michael
OrderNumber: 10355
Product: Aniseed Syrup
Unit Price: 10
Quantity: 10
Discount: 0.1
Extended Price: $90.00

FIG. 39

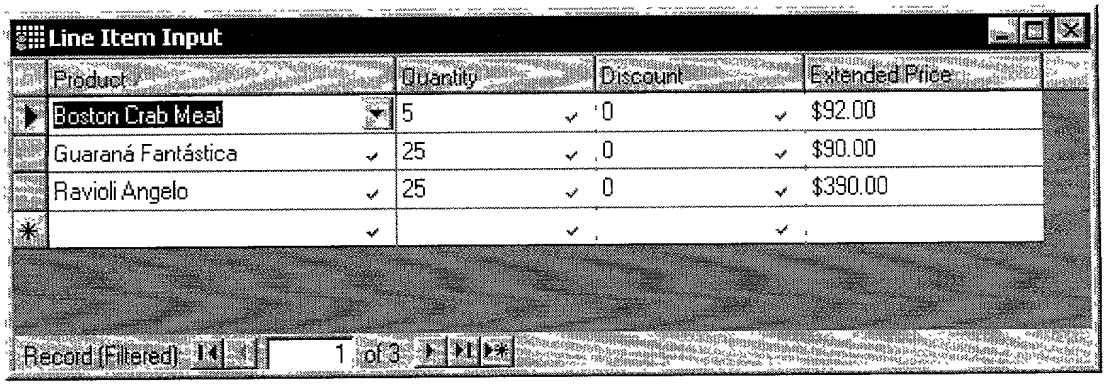

Line Item Input
Product
Quantity
Discount
Extended Price
Boston Crab Meat
5
0
$92.00
Guaraná Fantástica
25
0
$90.00
Ravioli Angelo
25
0
$390.00
Record (Filtered)
1
of 3

FIG. 40

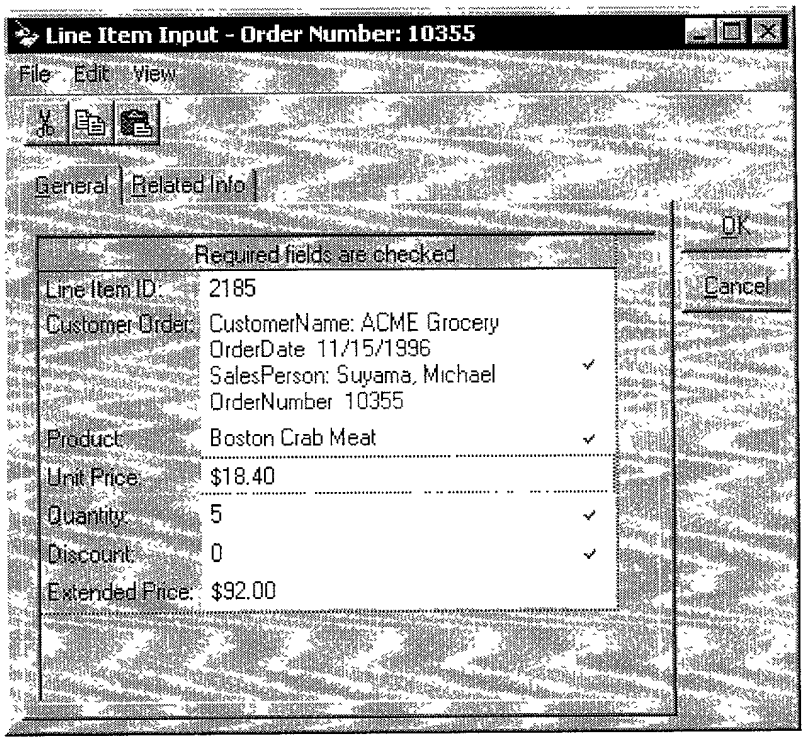

Line Item Input - Order Number: 10355
File Edit View
General
Related Info
OK
Cancel
Required fields are checked
Line Item ID:
2185
Customer Order:
CustomerName: ACME Grocery
OrderDate 11/15/1996
SalesPerson: Suyama, Michael
OrderNumber 10355
Product:
Boston Crab Meat
Unit Price:
$18.40
Quantity:
5
Discount:
0
Extended Price:
$92.00

FIG. 41

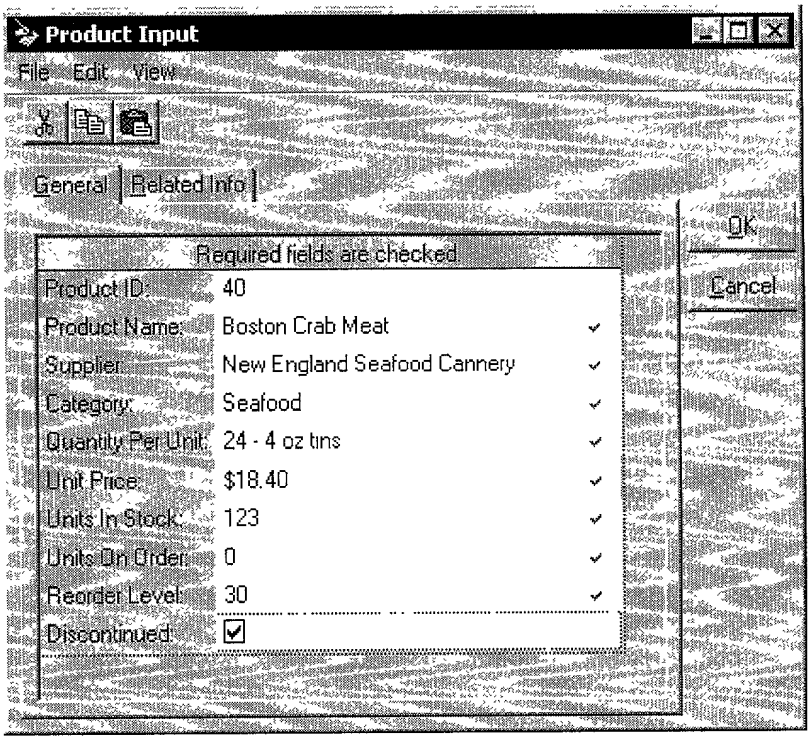

Product Input
File Edit View
General Related Info
OK
Cancel
Required fields are checked
Product ID: 40
Product Name: Boston Crab Meat
Supplier: New England Seafood Cannery
Category: Seafood
Quantity Per Unit: 24 - 4 oz tins
Unit Price: $18.40
Units In Stock: 123
Units On Order: 0
Reorder Level: 30
Discontinued:

FIG. 42

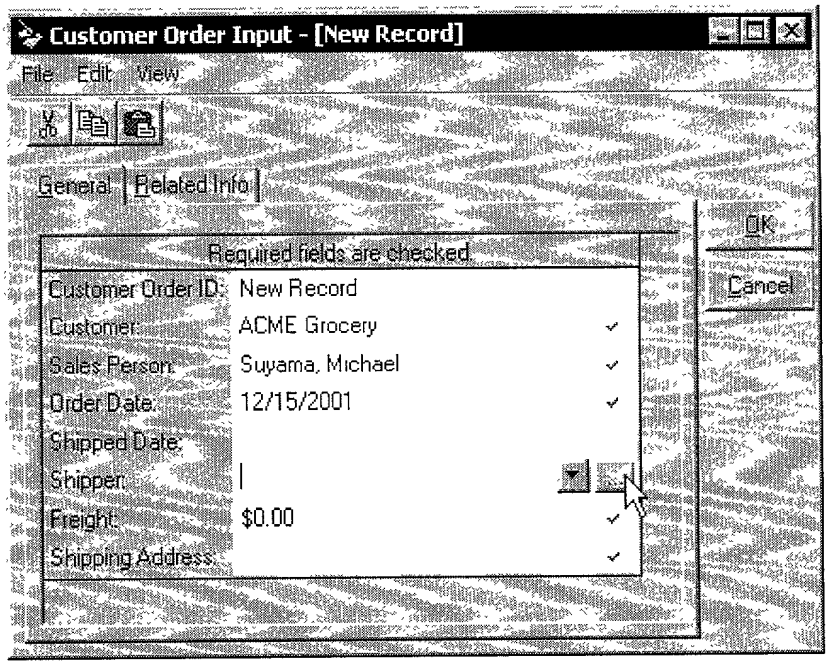

Customer Order Input - [New Record]
File Edit View
General Related Info
OK
Cancel
Required fields are checked
Customer Order ID: New Record
Customer: ACME Grocery
Sales Person: Suyama, Michael
Order Date: 12/15/2001
Shipped Date:
Shipper:
Freight: $0.00
Shipping Address:

FIG. 43

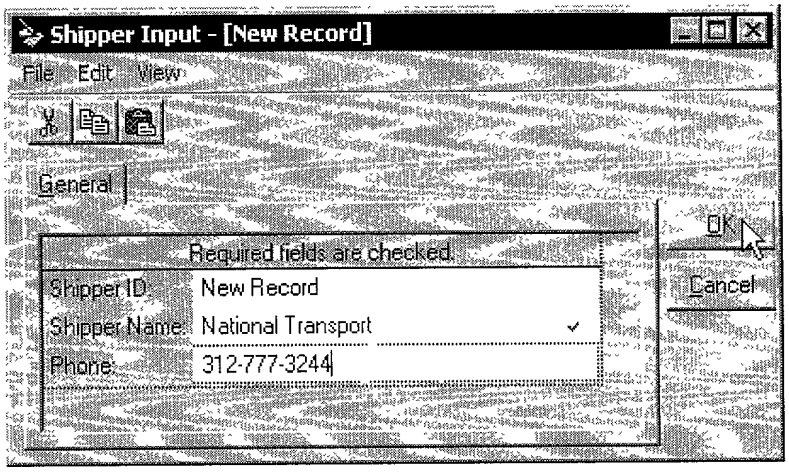

Shipper Input - [New Record]
File Edit View
General
Required fields are checked
Shipper ID: New Record
Shipper Name: National Transport
Phone: 312-777-3244
OK
Cancel

FIG. 44

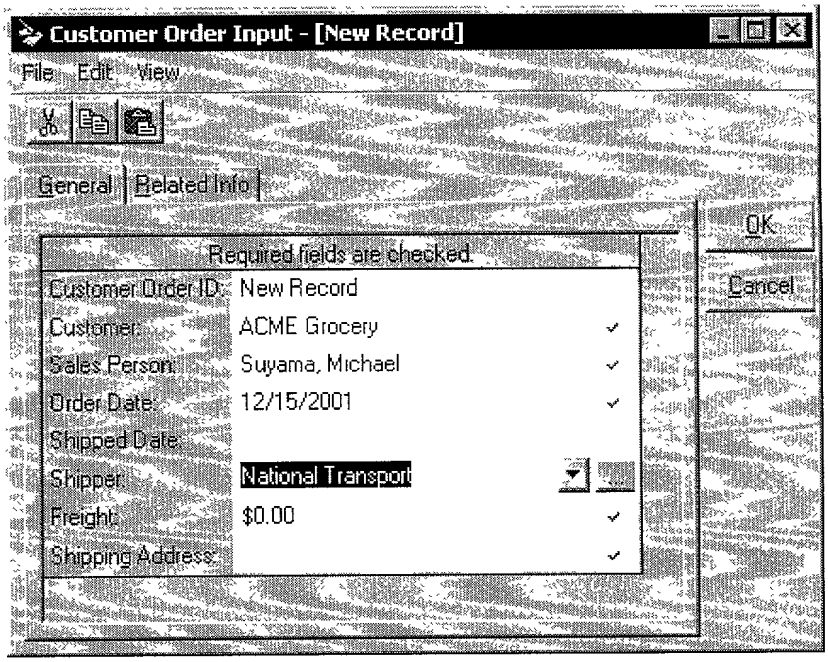

Customer Order Input - [New Record]
File Edit View
General Related Info
OK
Cancel
Required fields are checked
Customer Order ID: New Record
Customer: ACME Grocery
Sales Person: Suyama, Michael
Order Date: 12/15/2001
Shipped Date:
Shipper: National Transport
Freight: $0.00
Shipping Address:

FIG. 45

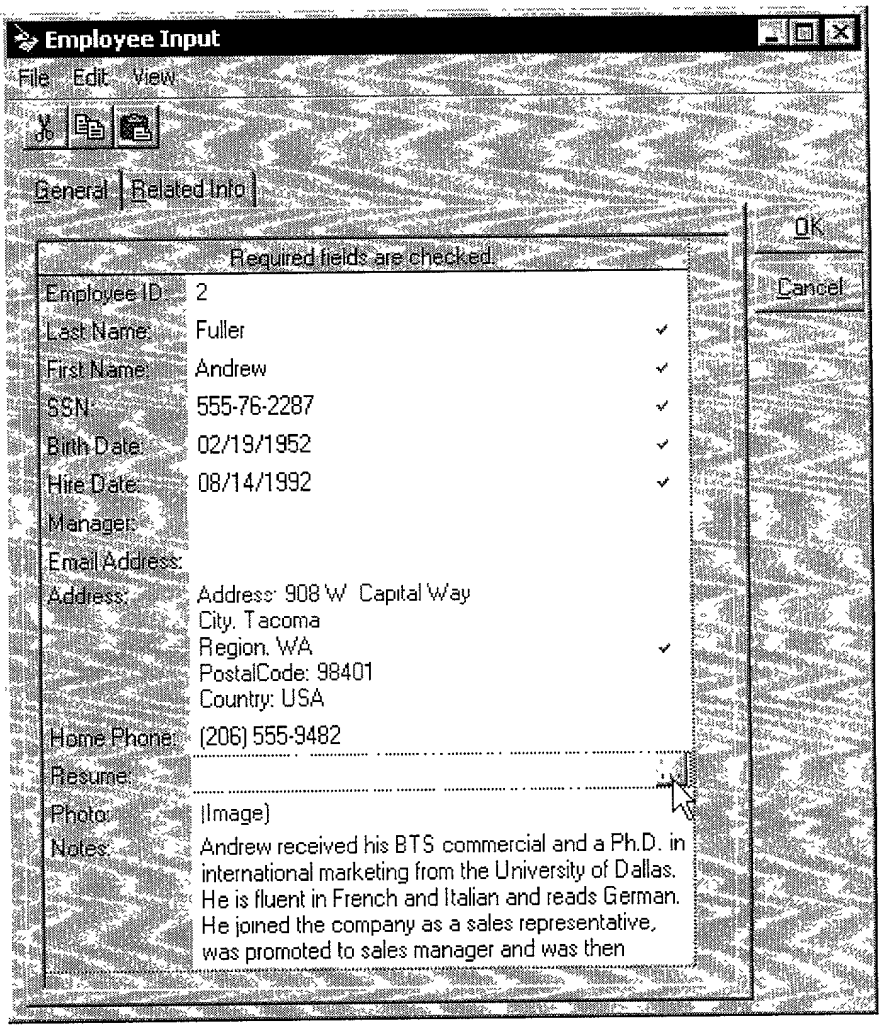

Employee Input
File Edit View
General
Related Info
OK
Cancel
Required fields are checked.
Employee ID: 2
Last Name: Fuller
First Name: Andrew
SSN: 555-76-2287
Birth Date: 02/19/1952
Hire Date: 08/14/1992
Manager:
Email Address:
Address: Address: 908 W Capital Way
City: Tacoma
Region: WA
PostalCode: 98401
Country: USA
Home Phone: (206) 555-9482
Resume:
Photo: (Image)
Notes: Andrew received his BTS commercial and a Ph.D. in international marketing from the University of Dallas. He is fluent in French and Italian and reads German. He joined the company as a sales representative, was promoted to sales manager and was then

FIG. 46

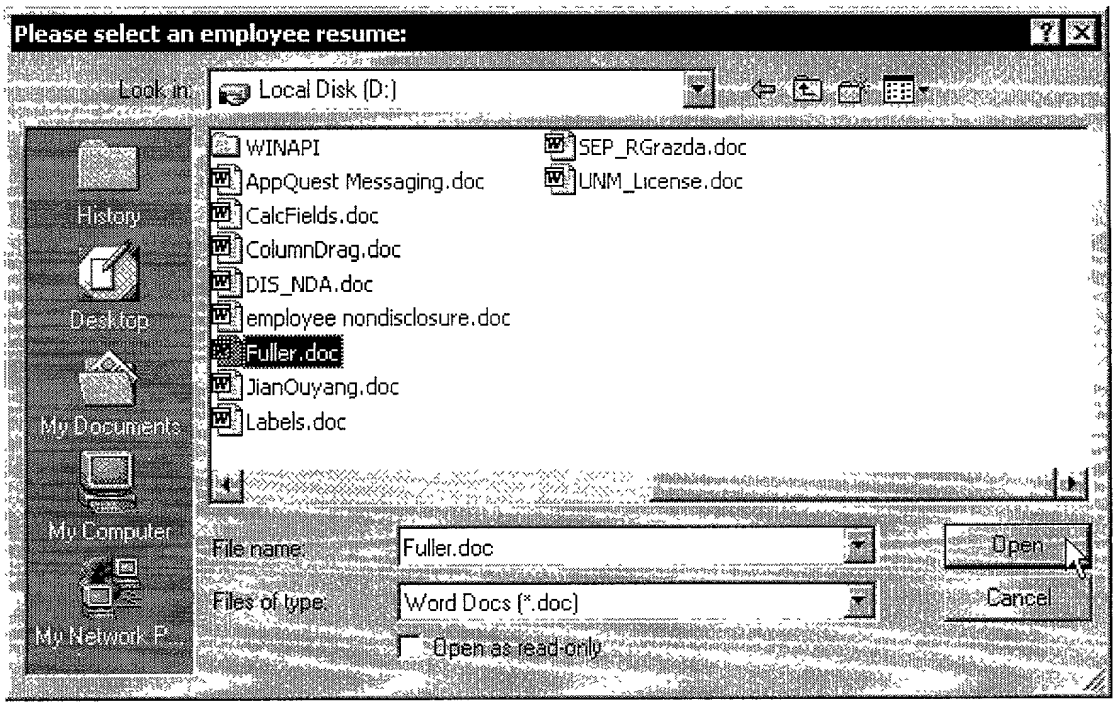

Please select an employee resume:
Look in:
Local Disk (D:)
WINAPI
AppQuest Messaging.doc
CalcFields.doc
ColumnDrag.doc
DIS_NDA.doc
employee nondisclosure.doc
Fuller.doc
JianOuyang.doc
Labels.doc
SEP_RGrazda.doc
UNM_License.doc
History
Desktop
My Documents
My Computer
My Network P...
File name:
Fuller.doc
Files of type:
Word Docs (*.doc)
Open as read-only
Open
Cancel

FIG. 47

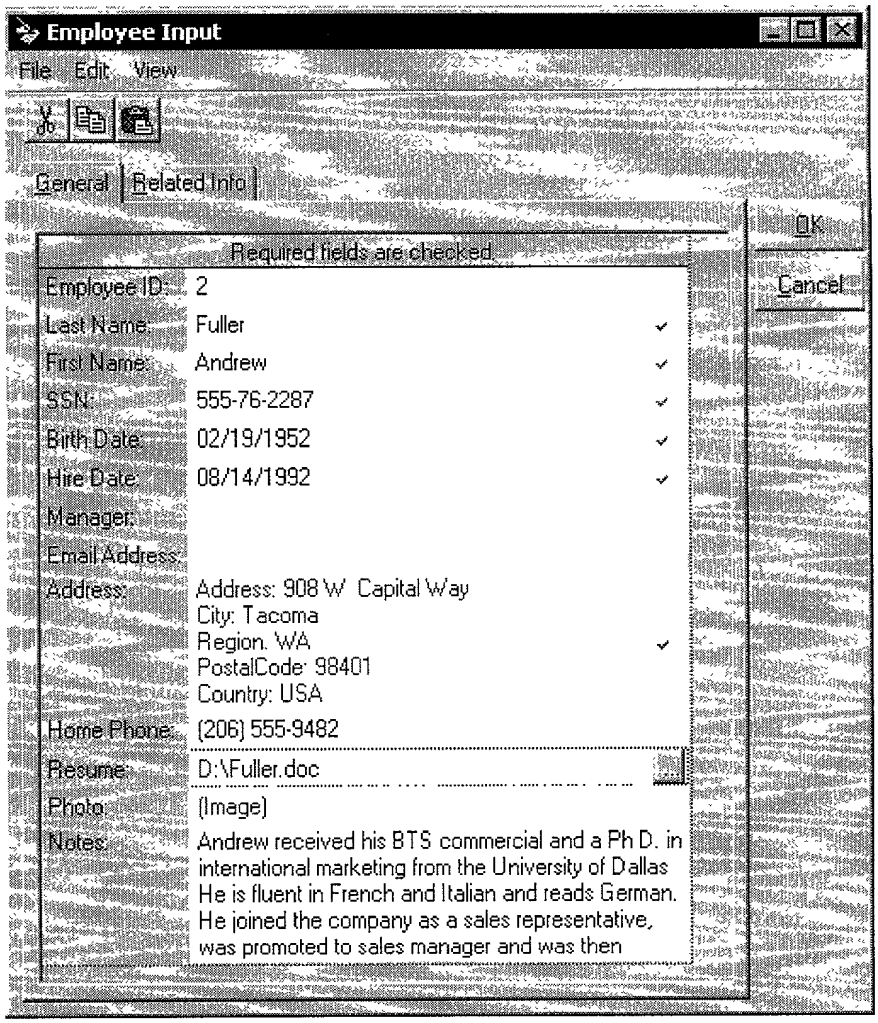

Employee Input
File Edit View
General Related Info
OK
Cancel
Required fields are checked.
Employee ID: 2
Last Name: Fuller
First Name: Andrew
SSN: 555-76-2287
Birth Date: 02/19/1952
Hire Date: 08/14/1992
Manager:
Email Address:
Address: Address: 908 W Capital Way
City: Tacoma
Region: WA
PostalCode: 98401
Country: USA
Home Phone: (206) 555-9482
Resume: D:\Fuller.doc
Photo: (Image)
Notes: Andrew received his BTS commercial and a Ph D. in international marketing from the University of Dallas He is fluent in French and Italian and reads German. He joined the company as a sales representative, was promoted to sales manager and was then

FIG. 48

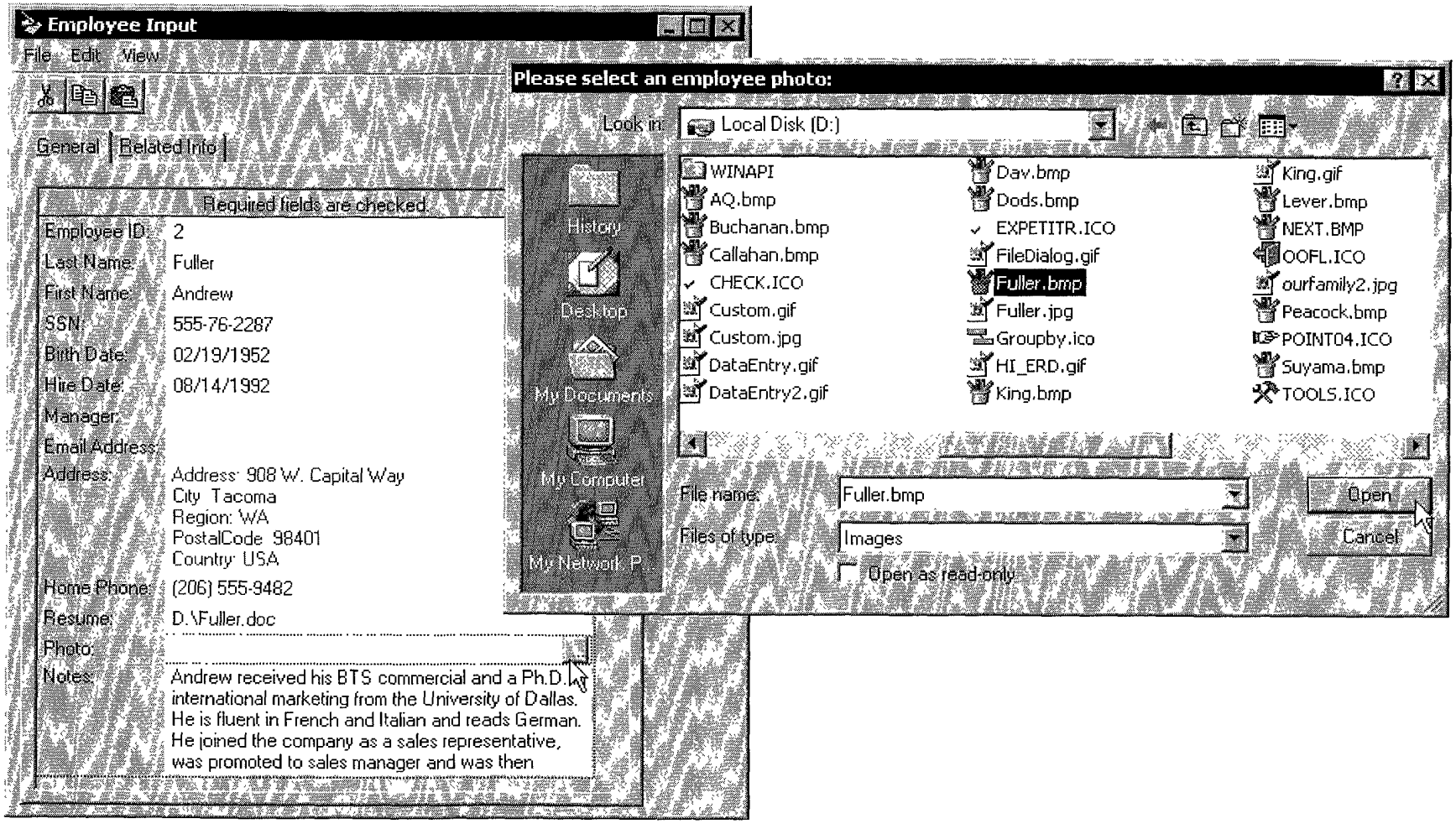

Employee Input
File Edit View
General Related Info
Required fields are checked.
Employee ID: 2
Last Name: Fuller
First Name: Andrew
SSN: 555-76-2287
Birth Date: 02/19/1952
Hire Date: 08/14/1992
Manager:
Email Address:
Address: Address: 908 W. Capital Way
City Tacoma
Region: WA
PostalCode 98401
Country USA
Home Phone: (206) 555-9482
Resume: D:\Fuller.doc
Photo:
Notes: Andrew received his BTS commercial and a Ph.D. in international marketing from the University of Dallas. He is fluent in French and Italian and reads German. He joined the company as a sales representative, was promoted to sales manager and was then
Please select an employee photo:
Look in: Local Disk (D:)
History
Desktop
My Documents
My Computer
My Network P...
WINAPI
AQ.bmp
Buchanan.bmp
Callahan.bmp
CHECK.ICO
Custom.gif
Custom.jpg
DataEntry.gif
DataEntry2.gif
Dav.bmp
Dods.bmp
EXPETITR.ICO
FileDialog.gif
Fuller.bmp
Fuller.jpg
Groupby.ico
HI_ERD.gif
King.bmp
King.gif
Lever.bmp
NEXT.BMP
OOFL.ICO
ourfamily2.jpg
Peacock.bmp
POINT04.ICO
Suyama.bmp
TOOLS.ICO
File name: Fuller.bmp
Files of type: Images
Open as read-only
Open
Cancel

FIG. 49

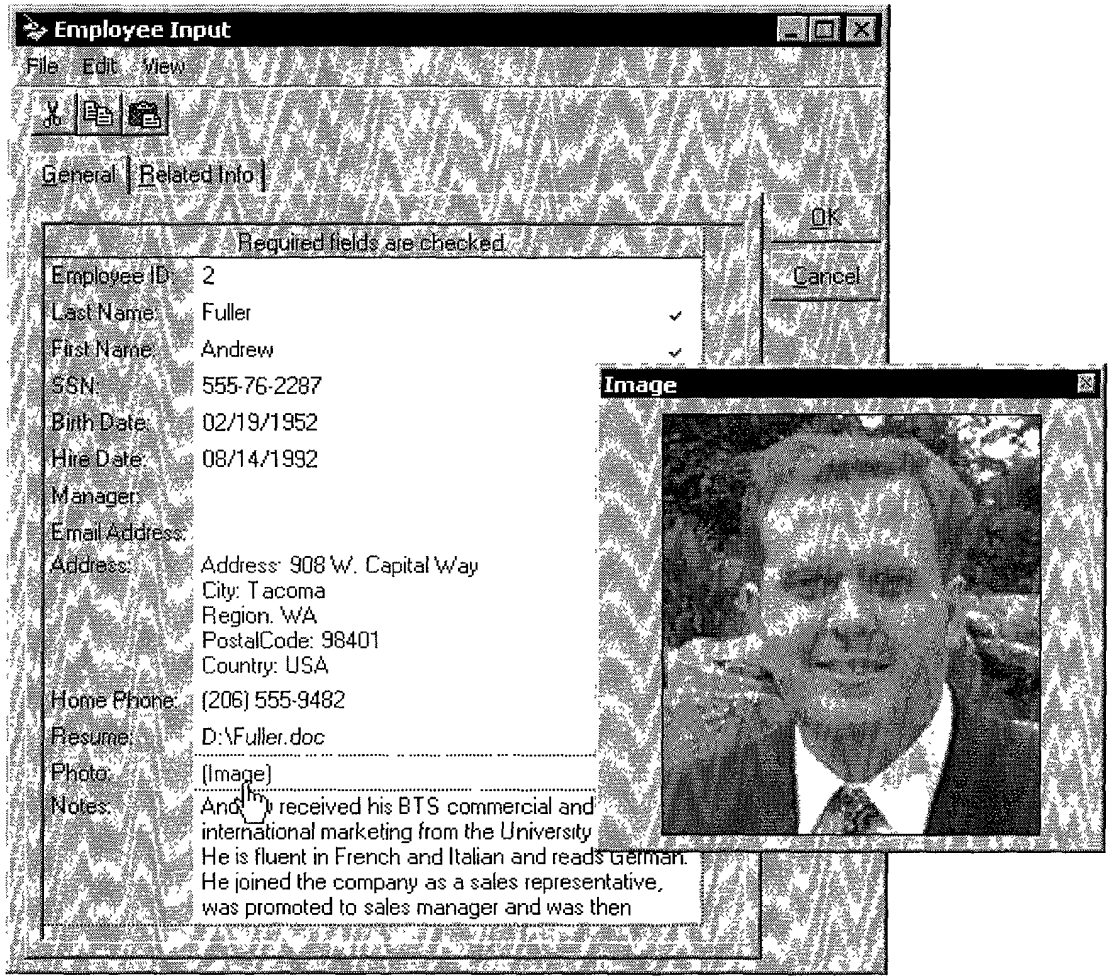

Employee Input
File Edit View
General Related Info
OK
Cancel
Required fields are checked
Employee ID: 2
Last Name: Fuller
First Name: Andrew
SSN: 555-76-2287
Birth Date: 02/19/1952
Hire Date: 08/14/1992
Manager:
Email Address:
Address: Address: 908 W. Capital Way
City: Tacoma
Region: WA
PostalCode: 98401
Country: USA
Home Phone: (206) 555-9482
Resume: D:\Fuller.doc
Photo: (Image)
Notes: And received his BTS commercial and international marketing from the University
He is fluent in French and Italian and reads German.
He joined the company as a sales representative,
was promoted to sales manager and was then
Image

FIG. 50

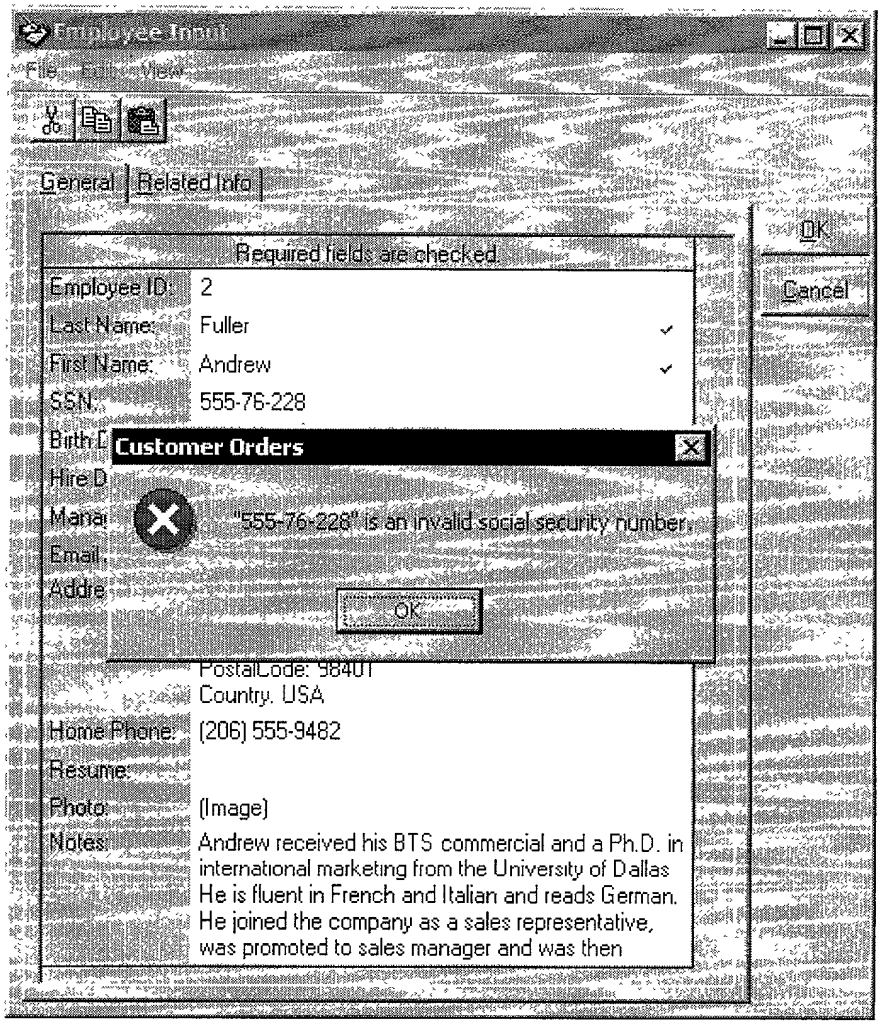

Employee Input
File Edit View
General
Related Info
OK
Cancel
Required fields are checked
Employee ID: 2
Last Name: Fuller
First Name: Andrew
SSN: 555-76-228
Customer Orders
"555-76-228" is an invalid social security number.
OK
PostalCode: 98401
Country: USA
Home Phone: (206) 555-9482
Resume:
Photo: (Image)
Notes: Andrew received his BTS commercial and a Ph.D. in international marketing from the University of Dallas He is fluent in French and Italian and reads German. He joined the company as a sales representative, was promoted to sales manager and was then

FIG. 51

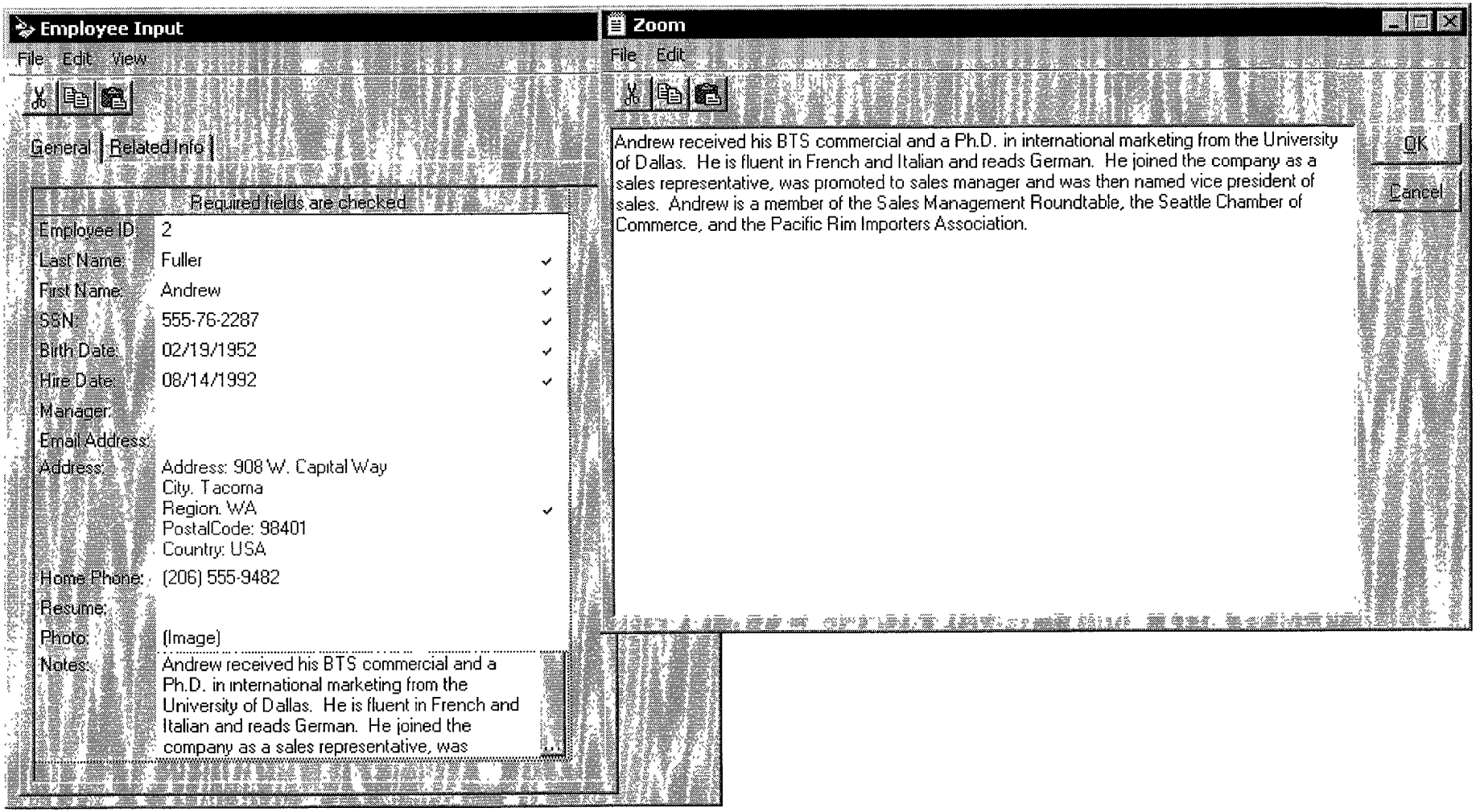

Employee Input
File Edit View
General Related Info
Required fields are checked
Employee ID: 2
Last Name: Fuller
First Name: Andrew
SSN: 555-76-2287
Birth Date: 02/19/1952
Hire Date: 08/14/1992
Manager:
Email Address:
Address: Address: 908 W. Capital Way
City: Tacoma
Region: WA
PostalCode: 98401
Country: USA
Home Phone: (206) 555-9482
Resume:
Photo: (Image)
Notes: Andrew received his BTS commercial and a Ph.D. in international marketing from the University of Dallas. He is fluent in French and Italian and reads German. He joined the company as a sales representative, was
Zoom
File Edit
Andrew received his BTS commercial and a Ph.D. in international marketing from the University of Dallas. He is fluent in French and Italian and reads German. He joined the company as a sales representative, was promoted to sales manager and was then named vice president of sales. Andrew is a member of the Sales Management Roundtable, the Seattle Chamber of Commerce, and the Pacific Rim Importers Association.
OK
Cancel

FIG. 52

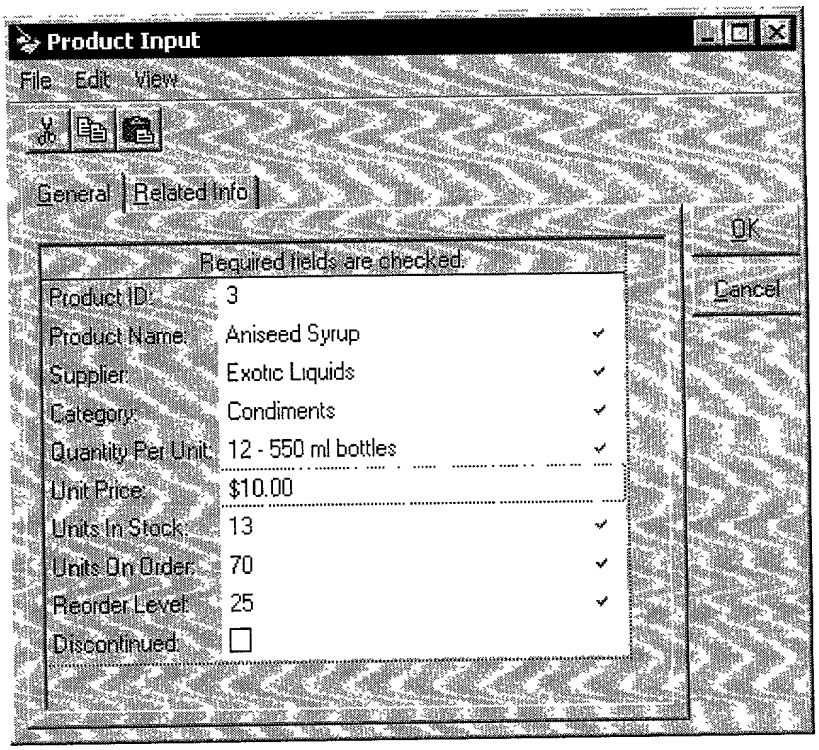

Product Input
File Edit View
General Related Info
OK
Cancel
Required fields are checked.
Product ID: 3
Product Name: Aniseed Syrup
Supplier: Exotic Liquids
Category: Condiments
Quantity Per Unit: 12 - 550 ml bottles
Unit Price: $10.00
Units In Stock: 13
Units On Order: 70
Reorder Level: 25
Discontinued:

FIG. 53

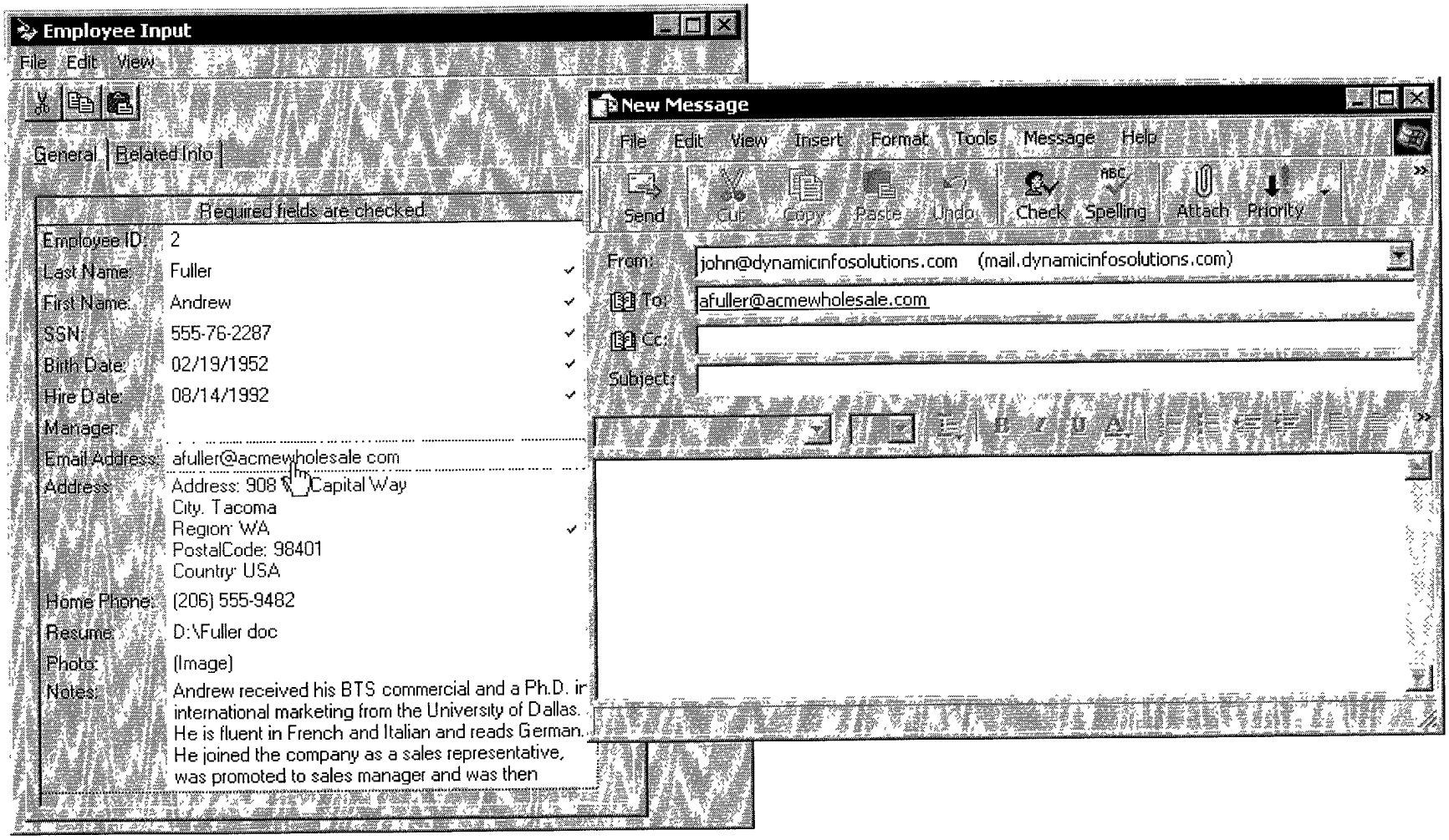

Employee Input
File Edit View
General Related Info
Required fields are checked.
Employee ID: 2
Last Name: Fuller
First Name: Andrew
SSN: 555-76-2287
Birth Date: 02/19/1952
Hire Date: 08/14/1992
Manager:
Email Address: afuller@acmewholesale com
Address: Address: 908 Capital Way
City: Tacoma
Region: WA
PostalCode: 98401
Country: USA
Home Phone: (206) 555-9482
Resume: D:\Fuller doc
Photo: (Image)
Notes: Andrew received his BTS commercial and a Ph.D. ir international marketing from the University of Dallas. He is fluent in French and Italian and reads German. He joined the company as a sales representative, was promoted to sales manager and was then
New Message
File Edit View Insert Format Tools Message Help
Send Cut Copy Paste Undo Check Spelling Attach Priority
From: john@dynamicinfosolutions.com (mail.dynamicinfosolutions.com)
To: afuller@acmewholesale.com
Cc:
Subject:

FIG. 54

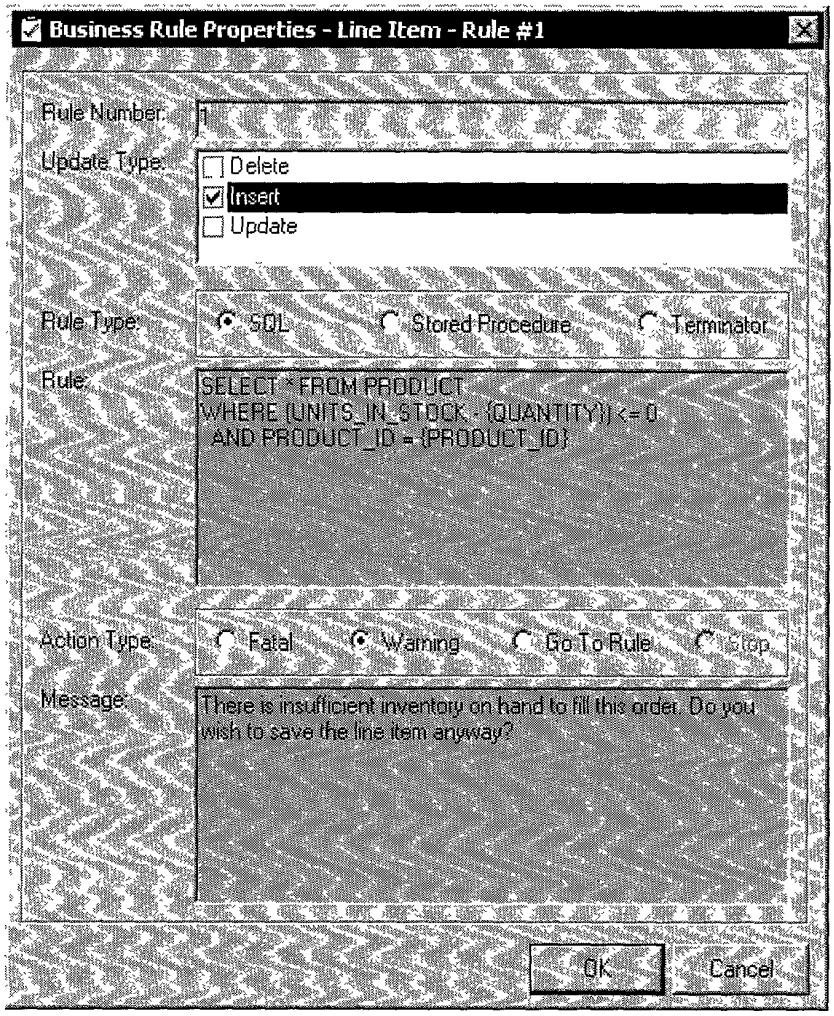

Business Rule Properties - Line Item - Rule #1
Rule Number:
1
Update Type:
Delete
Insert
Update
Rule Type:
SQL
Stored Procedure
Terminator
Rule:
SELECT * FROM PRODUCT
WHERE (UNITS_IN_STOCK - {QUANTITY}) <= 0
AND PRODUCT_ID = {PRODUCT_ID}
Action Type:
Fatal
Warning
Go To Rule
Stop
Message:
There is insufficient inventory on hand to fill this order. Do you wish to save the line item anyway?
OK
Cancel

FIG. 55

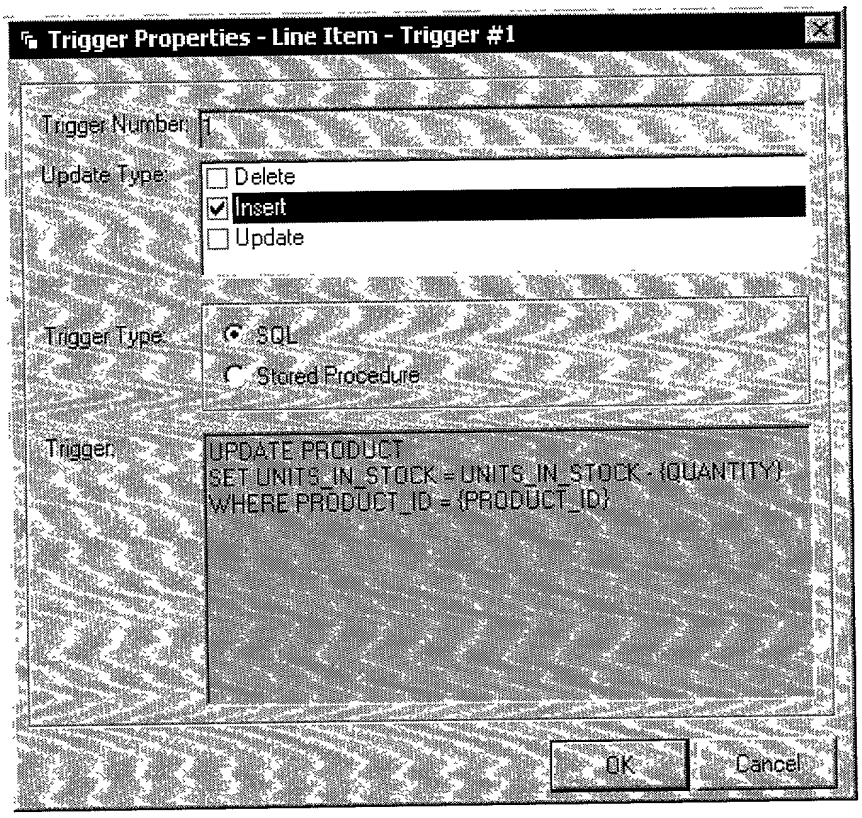

Trigger Properties - Line Item - Trigger #1
Trigger Number:
1
Update Type:
Delete
Insert
Update
Trigger Type:
SQL
Stored Procedure
Trigger:
UPDATE PRODUCT
SET UNITS_IN_STOCK = UNITS_IN_STOCK - {QUANTITY}
WHERE PRODUCT_ID = {PRODUCT_ID}
OK
Cancel

FIG. 56

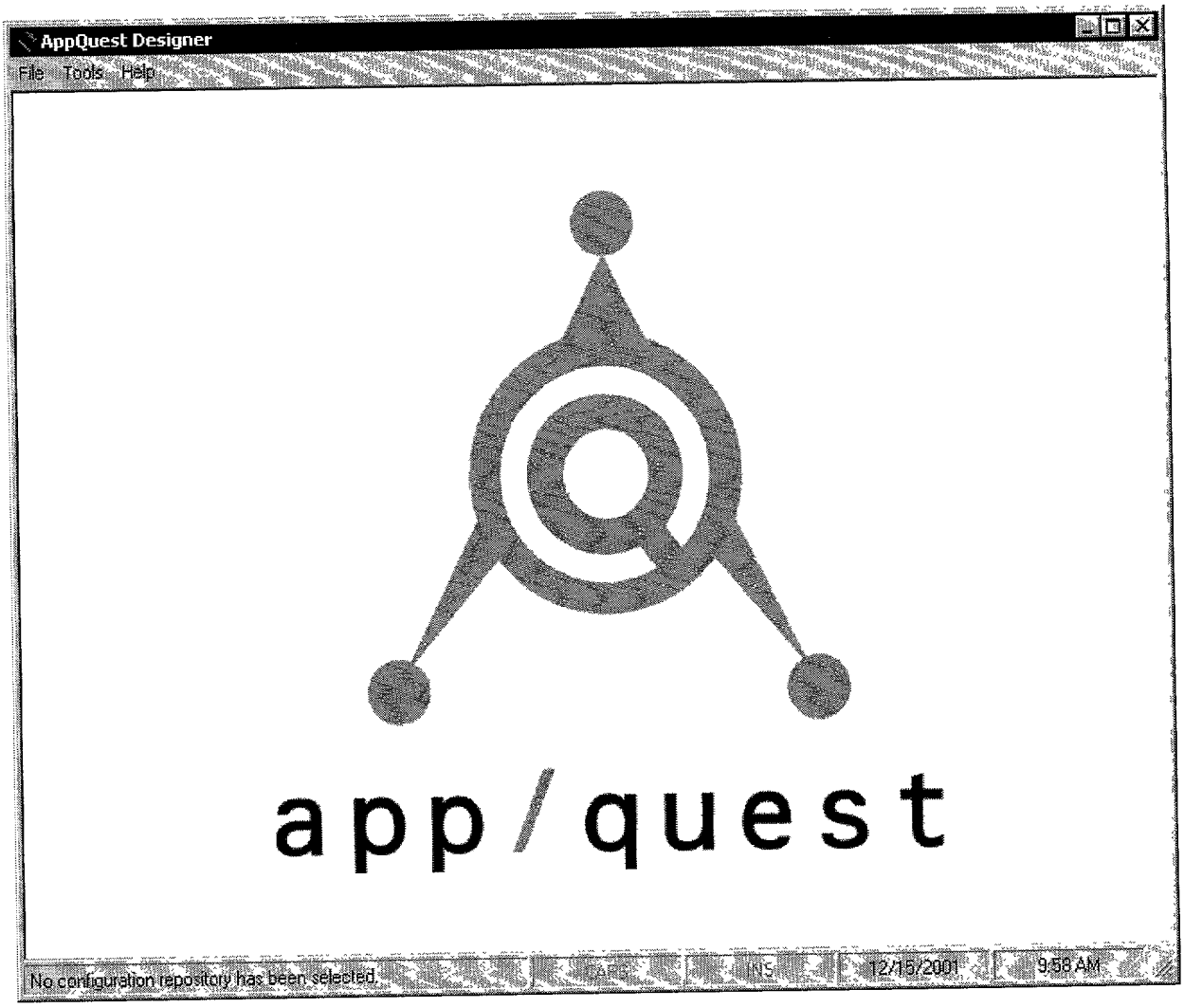

AppQuest Designer
File Tools Help
app/quest
No configuration repository has been selected.
CAPS
NUM
12/15/2001
9:58 AM

FIG. 57

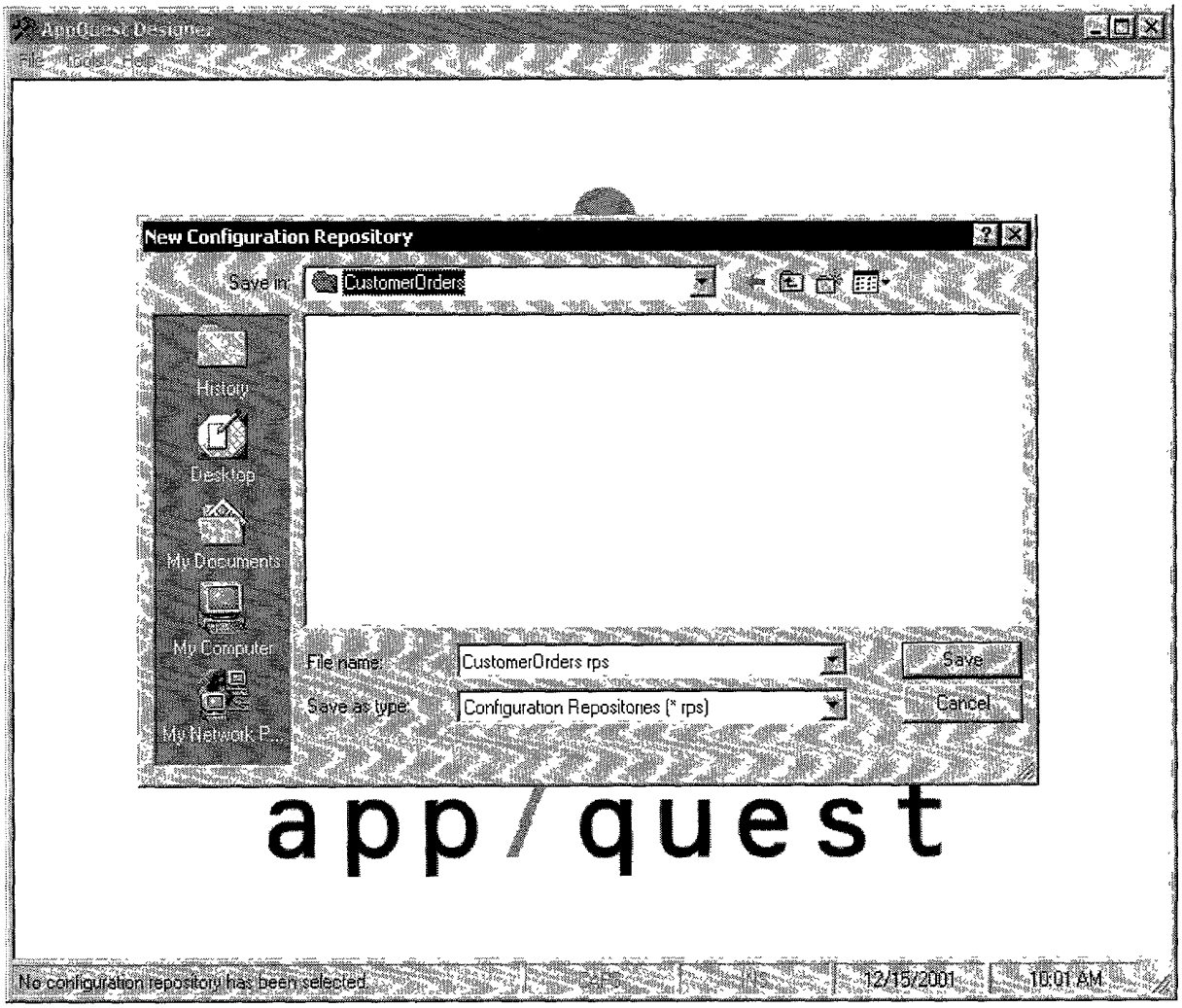

AppQuest Designer
File Tools Help
New Configuration Repository
Save in:
CustomerOrders
History
Desktop
My Documents
My Computer
My Network P...
File name:
CustomerOrders rps
Save as type:
Configuration Repositories (*.rps)
Save
Cancel
app/quest
No configuration repository has been selected.
12/15/2001
10:01 AM

FIG. 58

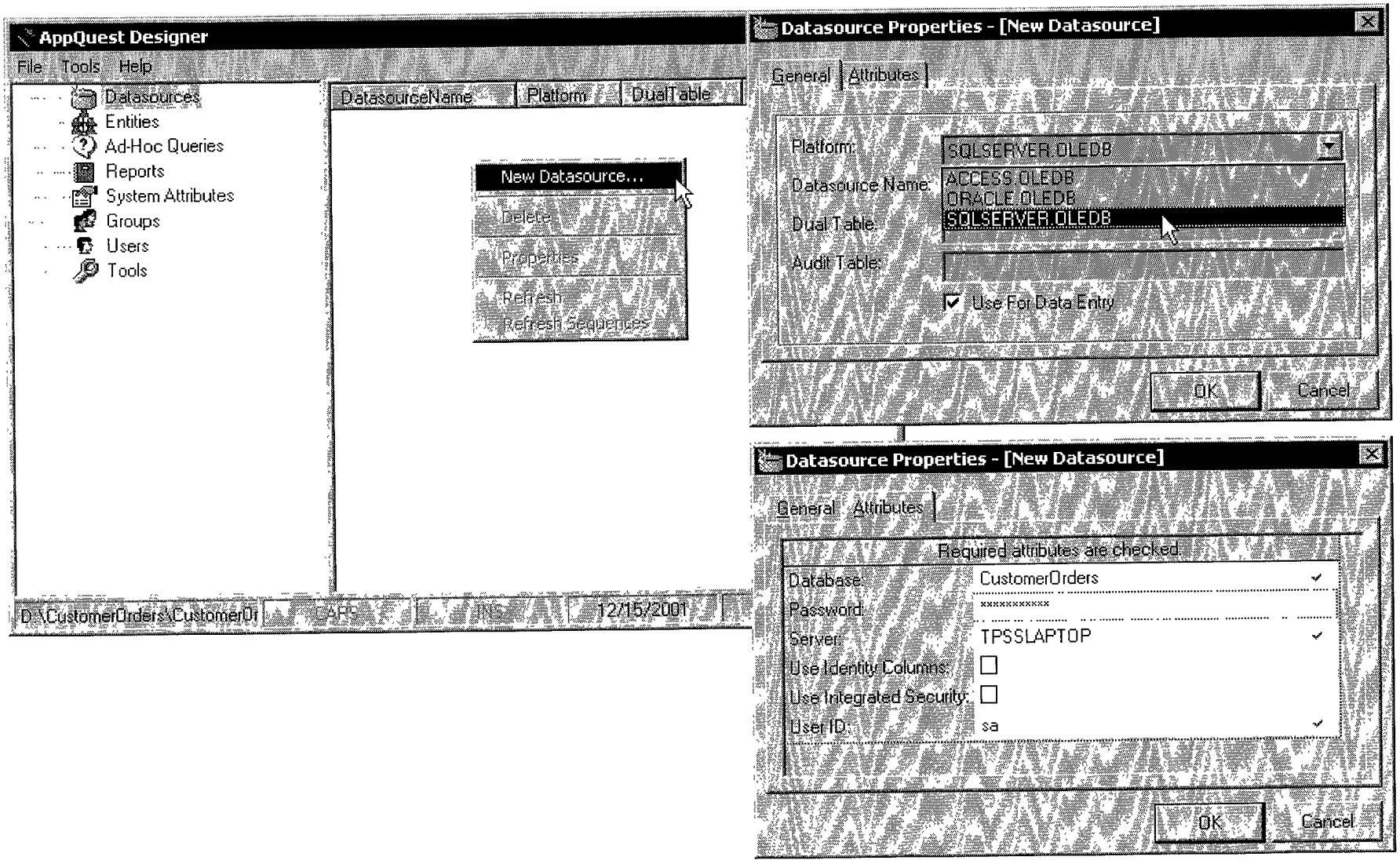

AppQuest Designer
File Tools Help
Datasources
Entities
Ad-Hoc Queries
Reports
System Attributes
Groups
Users
Tools
DatasourceName
Platform
DualTable
New Datasource...
Delete
Properties
Refresh
Refresh Sequences
D:\CustomerOrders\CustomerOr
CAPS
INS
12/15/2001
Datasource Properties - [New Datasource]
General
Attributes
Platform:
SQLSERVER.OLEDB
Datasource Name:
ACCESS.OLEDB
ORACLE.OLEDB
SQLSERVER.OLEDB
Dual Table:
Audit Table:
Use For Data Entry
OK
Cancel
Datasource Properties - [New Datasource]
General
Attributes
Required attributes are checked
Database:
CustomerOrders
Password:
Server:
TPSSLAPTOP
Use Identity Columns:
Use Integrated Security:
User ID:
sa
OK
Cancel

FIG. 59

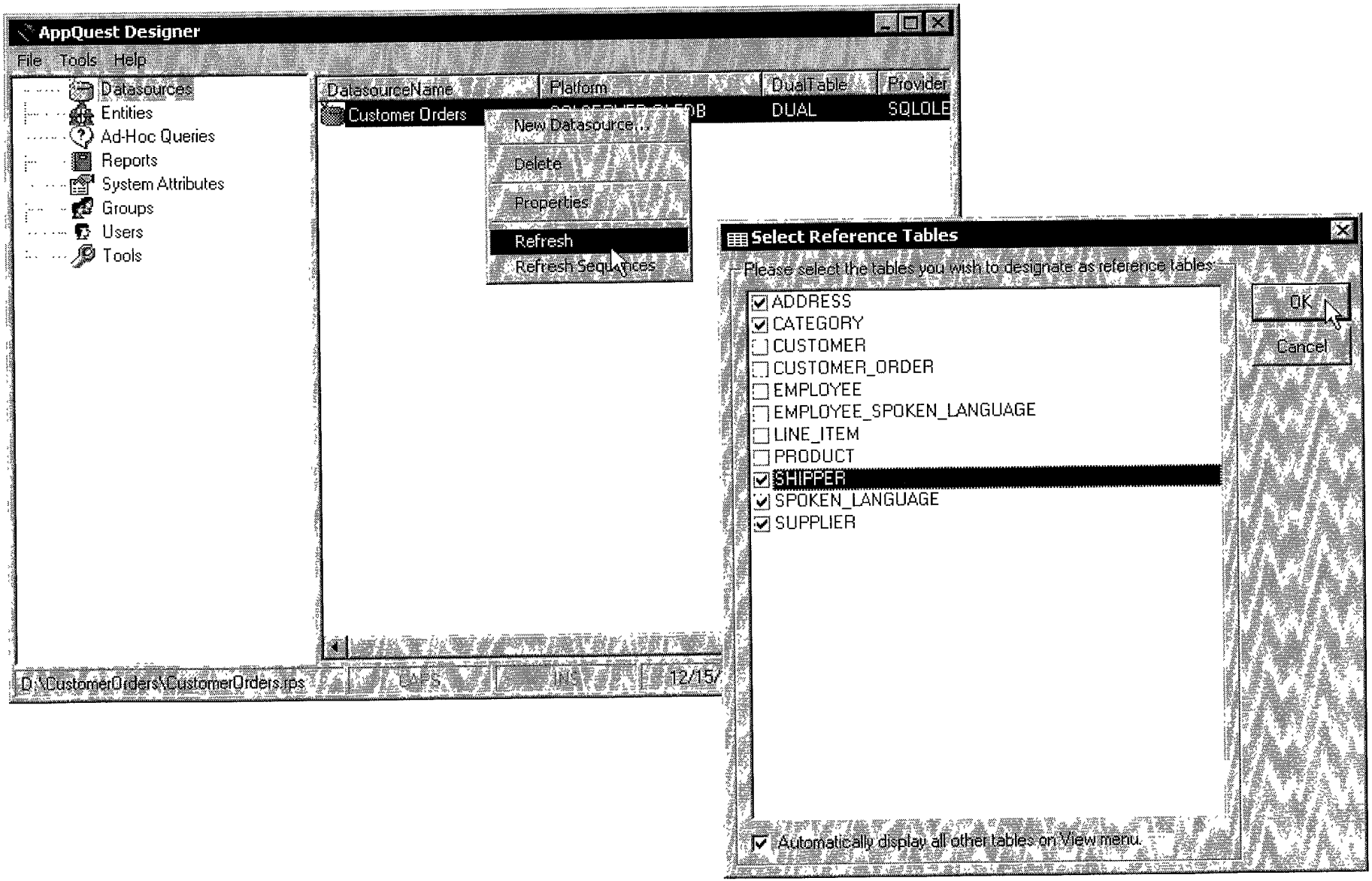

AppQuest Designer
File Tools Help
Datasources
Entities
Ad-Hoc Queries
Reports
System Attributes
Groups
Users
Tools
DatasourceName
Platform
DualTable
Provider
Customer Orders
DUAL
SQLOLE
New Datasource...
Delete
Properties
Refresh
Refresh Sequences
D:\CustomerOrders\CustomerOrders.ips
Select Reference Tables
Please select the tables you wish to designate as reference tables:
ADDRESS
CATEGORY
CUSTOMER
CUSTOMER_ORDER
EMPLOYEE
EMPLOYEE_SPOKEN_LANGUAGE
LINE_ITEM
PRODUCT
SHIPPER
SPOKEN_LANGUAGE
SUPPLIER
OK
Cancel
Automatically display all other tables on View menu.

FIG. 60

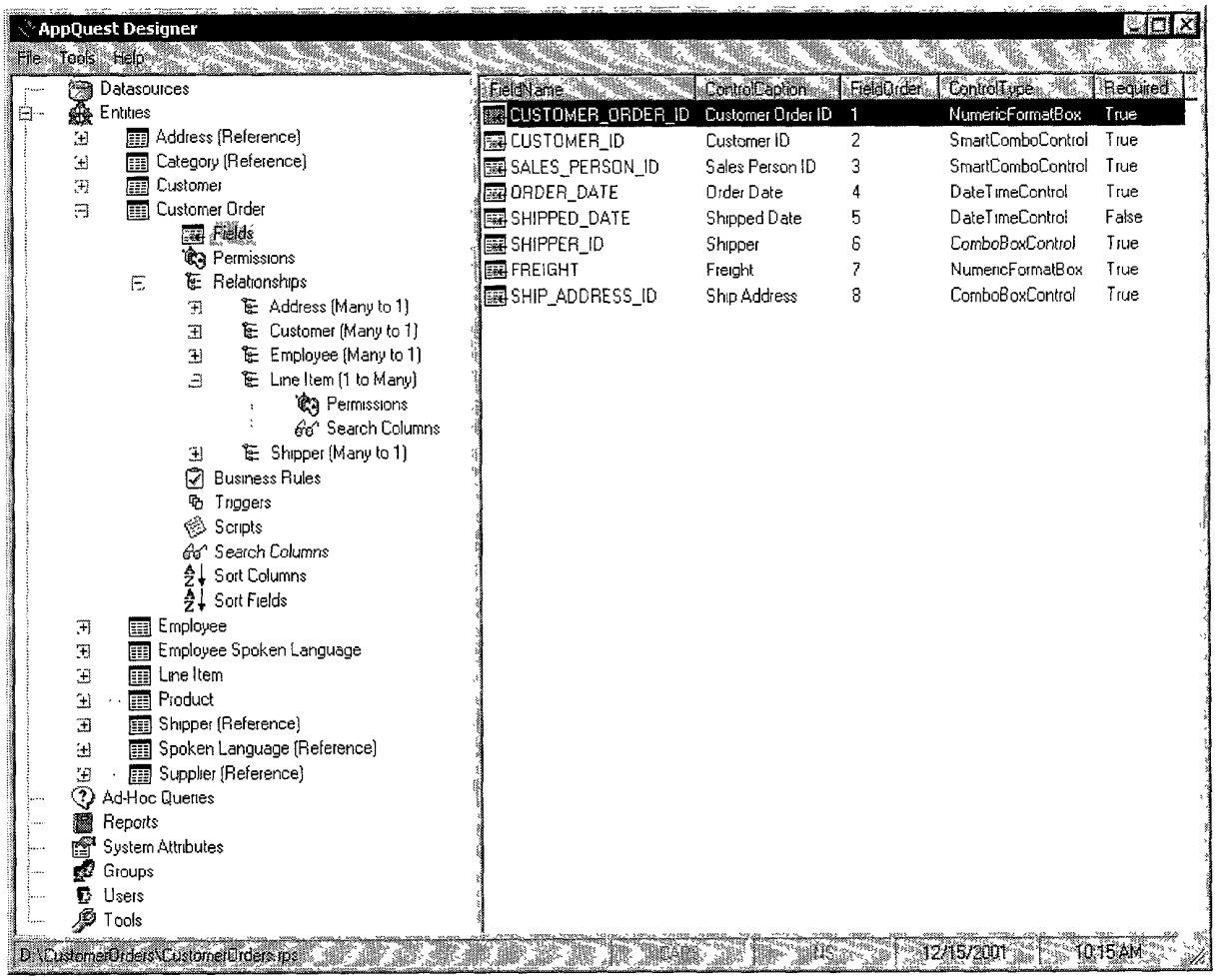
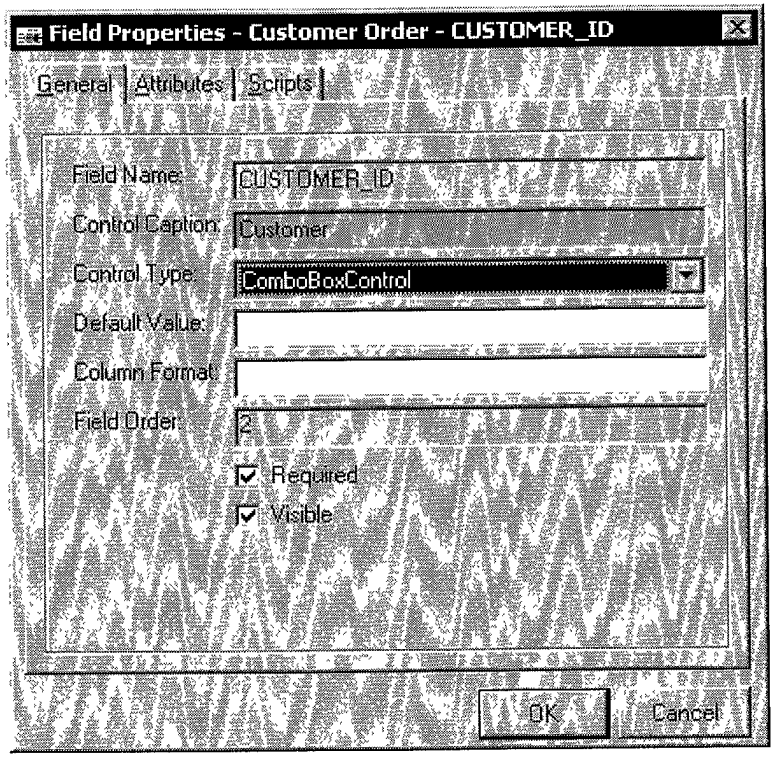

AppQuest Designer
File Tools Help
Datasources
Entities
Address (Reference)
Category (Reference)
Customer
Customer Order
Fields
Permissions
Relationships
Address (Many to 1)
Customer (Many to 1)
Employee (Many to 1)
Line Item (1 to Many)
Permissions
Search Columns
Shipper (Many to 1)
Business Rules
Triggers
Scripts
Search Columns
Sort Columns
Sort Fields
Employee
Employee Spoken Language
Line Item
Product
Shipper (Reference)
Spoken Language (Reference)
Supplier (Reference)
Ad-Hoc Queries
Reports
System Attributes
Groups
Users
Tools
FieldName
ControlCaption
FieldOrder
ControlType
Required
CUSTOMER_ORDER_ID Customer Order ID 1 NumericFormatBox True
CUSTOMER_ID Customer ID 2 SmartComboControl True
SALES_PERSON_ID Sales Person ID 3 SmartComboControl True
ORDER_DATE Order Date 4 DateTimeControl True
SHIPPED_DATE Shipped Date 5 DateTimeControl False
SHIPPER_ID Shipper 6 ComboBoxControl True
FREIGHT Freight 7 NumericFormatBox True
SHIP_ADDRESS_ID Ship Address 8 ComboBoxControl True
D:\CustomerOrders\CustomerOrders.ips
CAPS
US
12/15/2001
10:15 AM

FIG. 61


Field Properties - Customer Order - CUSTOMER_ID
General
Attributes
Scripts
Field Name:
CUSTOMER_ID
Control Caption:
Customer
Control Type:
ComboBoxControl
Default Value:
Column Format:
Field Order:
2
Required
Visible
OK
Cancel

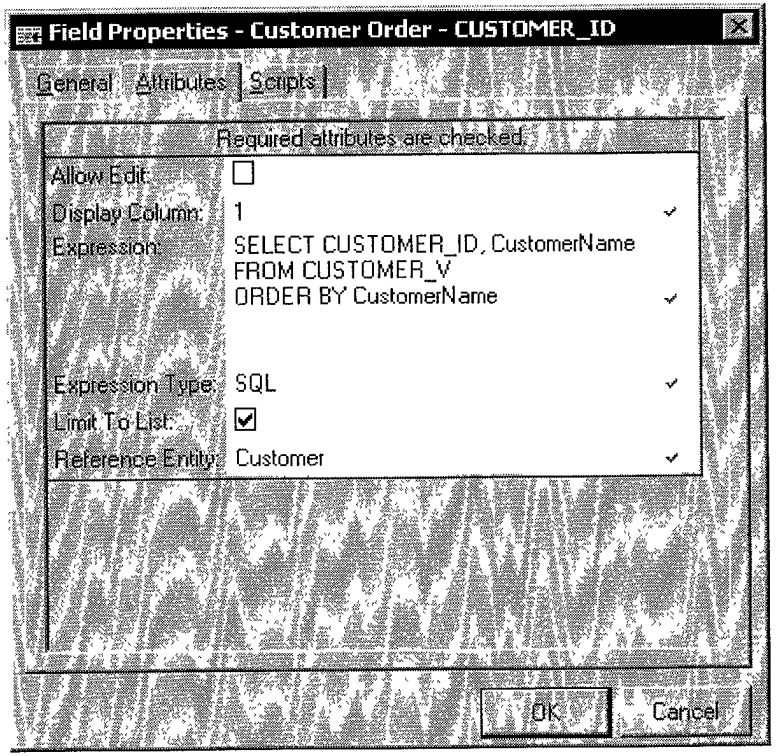
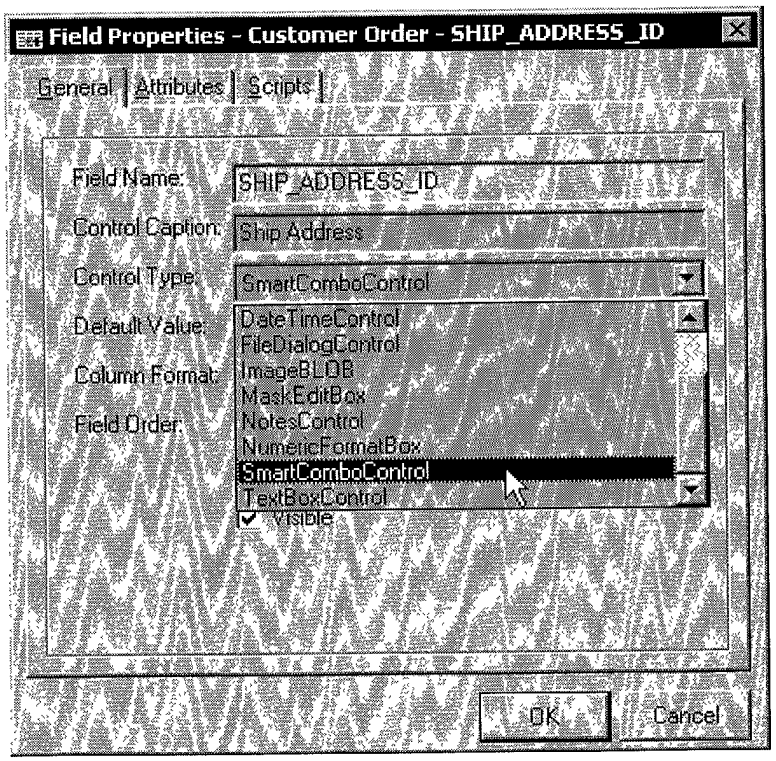

Field Properties - Customer Order - CUSTOMER_ID
General
Attributes
Scripts
Required attributes are checked.
Allow Edit:
Display Column:
1
Expression:
SELECT CUSTOMER_ID, CustomerName
FROM CUSTOMER_V
ORDER BY CustomerName
Expression Type:
SQL
Limit To List:
Reference Entity:
Customer
OK
Cancel

FIG. 62


Field Properties - Customer Order - SHIP_ADDRESS_ID
General
Attributes
Scripts
Field Name:
SHIP_ADDRESS_ID
Control Caption:
Ship Address
Control Type:
SmartComboControl
Default Value:
Column Format:
Field Order:
DateTimeControl
FileDialogControl
ImageBLOB
MaskEditBox
NotesControl
NumericFormatBox
SmartComboControl
TextBoxControl
Visible
OK
Cancel

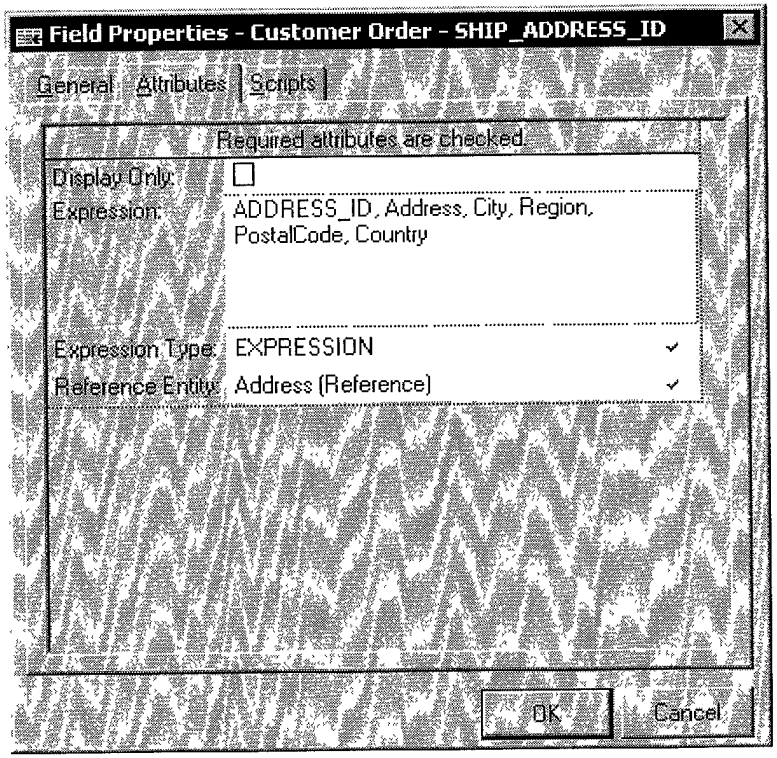

Field Properties - Customer Order - SHIP_ADDRESS_ID
General
Attributes
Scripts
Required attributes are checked
Display Only:
Expression:
ADDRESS_ID, Address, City, Region, PostalCode, Country
Expression Type:
EXPRESSION
Reference Entity:
Address (Reference)
OK
Cancel

FIG. 63

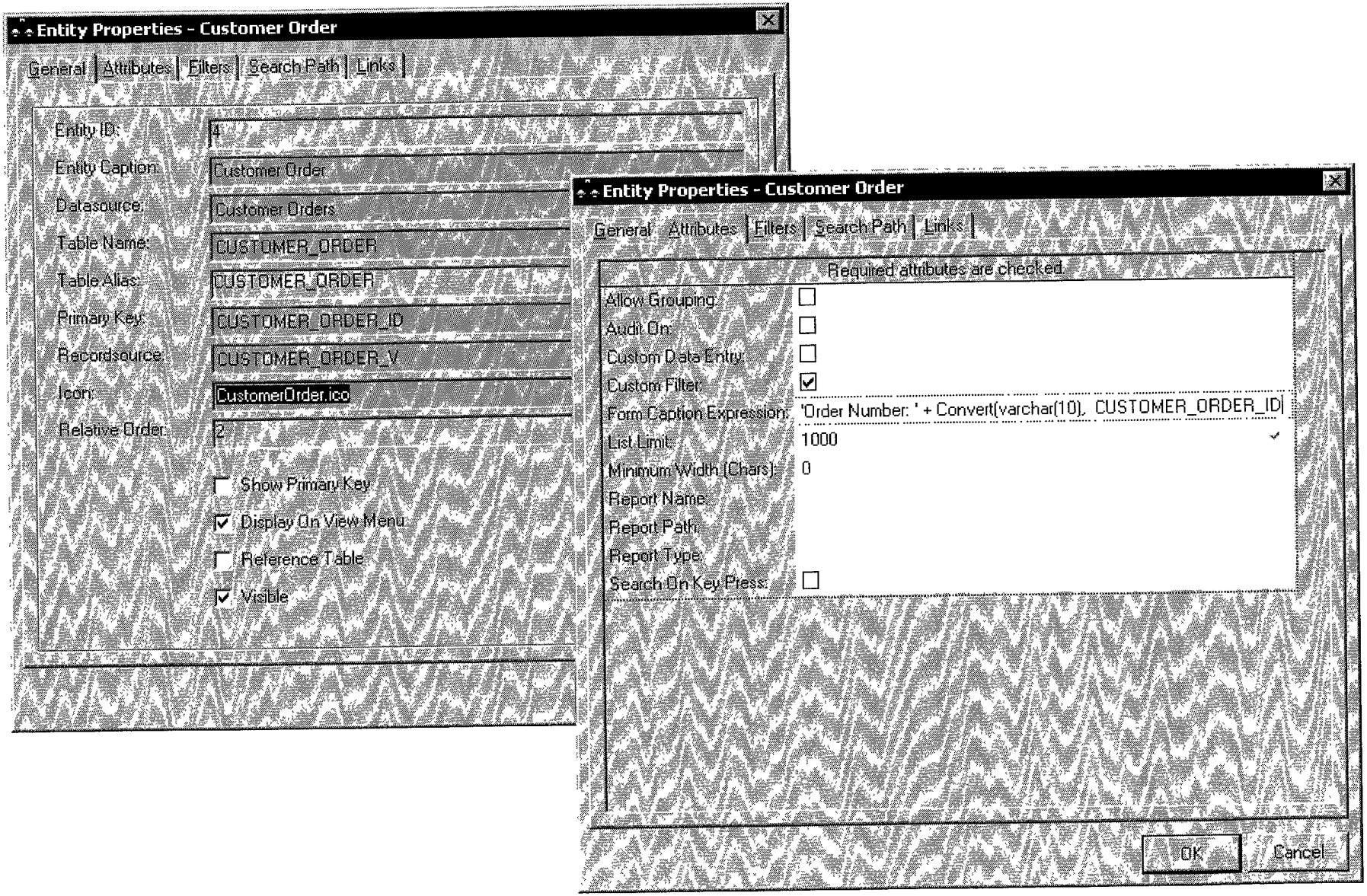

Entity Properties - Customer Order
General
Attributes
Filters
Search Path
Links
Entity ID:
4
Entity Caption:
Customer Order
Datasource:
Customer Orders
Table Name:
CUSTOMER_ORDER
Table Alias:
CUSTOMER_ORDER
Primary Key:
CUSTOMER_ORDER_ID
Recordsource:
CUSTOMER_ORDER_V
Icon:
CustomerOrder.ico
Relative Order:
2
Show Primary Key
Display On View Menu
Reference Table
Visible
Entity Properties - Customer Order
General
Attributes
Filters
Search Path
Links
Required attributes are checked
Allow Grouping:
Audit On:
Custom Data Entry:
Custom Filter:
Form Caption Expression:
'Order Number: ' + Convert(varchar(10), CUSTOMER_ORDER_ID)
List Limit:
1000
Minimum Width (Chars):
0
Report Name:
Report Path:
Report Type:
Search On Key Press:
OK
Cancel

FIG. 64

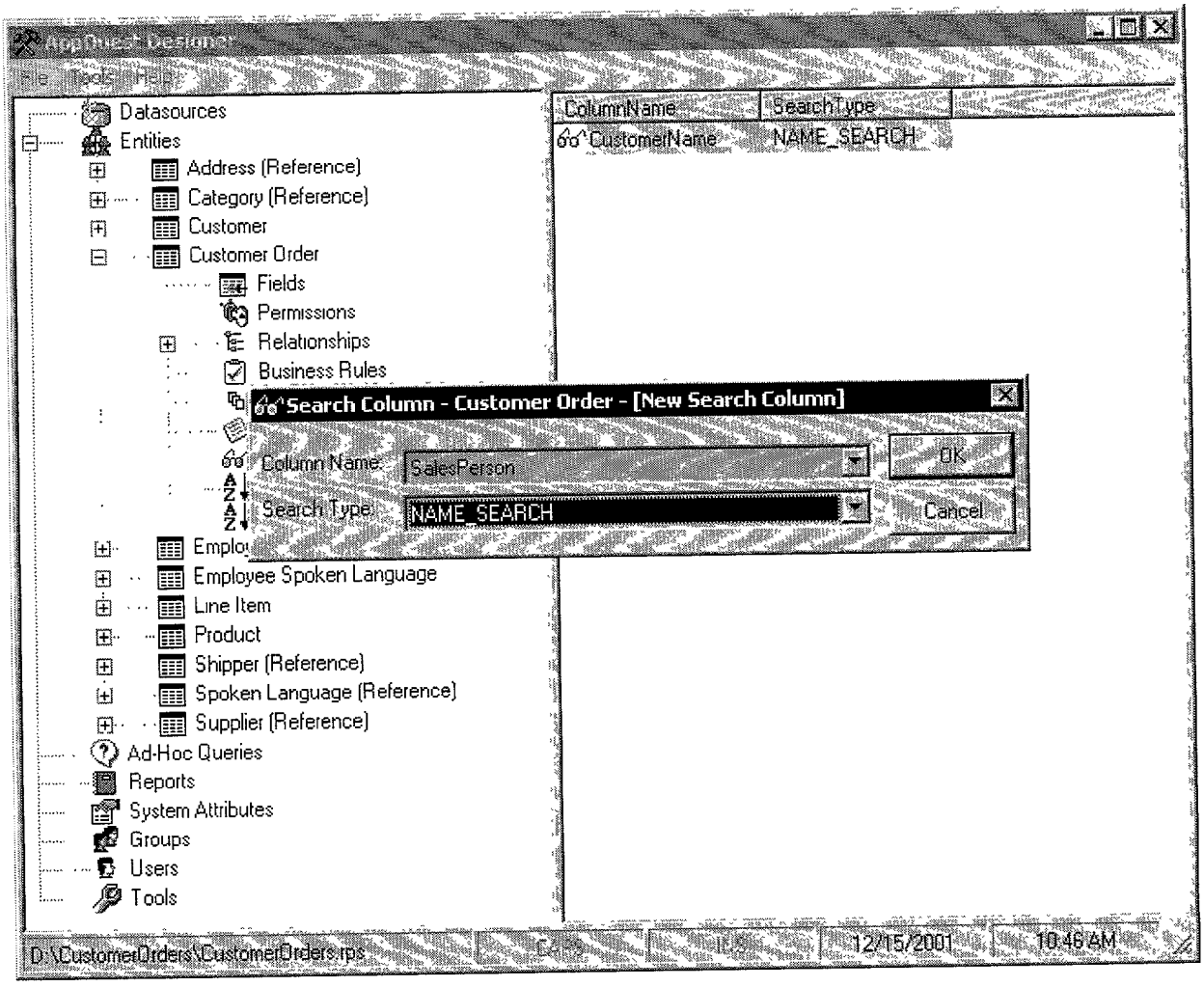

Datasources
Entities
Address (Reference)
Category (Reference)
Customer
Customer Order
Fields
Permissions
Relationships
Business Rules
Search Column - Customer Order - [New Search Column]
Column Name:
SalesPerson
Search Type:
NAME_SEARCH
OK
Cancel
Employee Spoken Language
Line Item
Product
Shipper (Reference)
Spoken Language (Reference)
Supplier (Reference)
Ad-Hoc Queries
Reports
System Attributes
Groups
Users
Tools
ColumnName
SearchType
CustomerName
NAME_SEARCH
D:\CustomerOrders\CustomerOrders.rps
12/15/2001
10:46 AM

FIG. 65

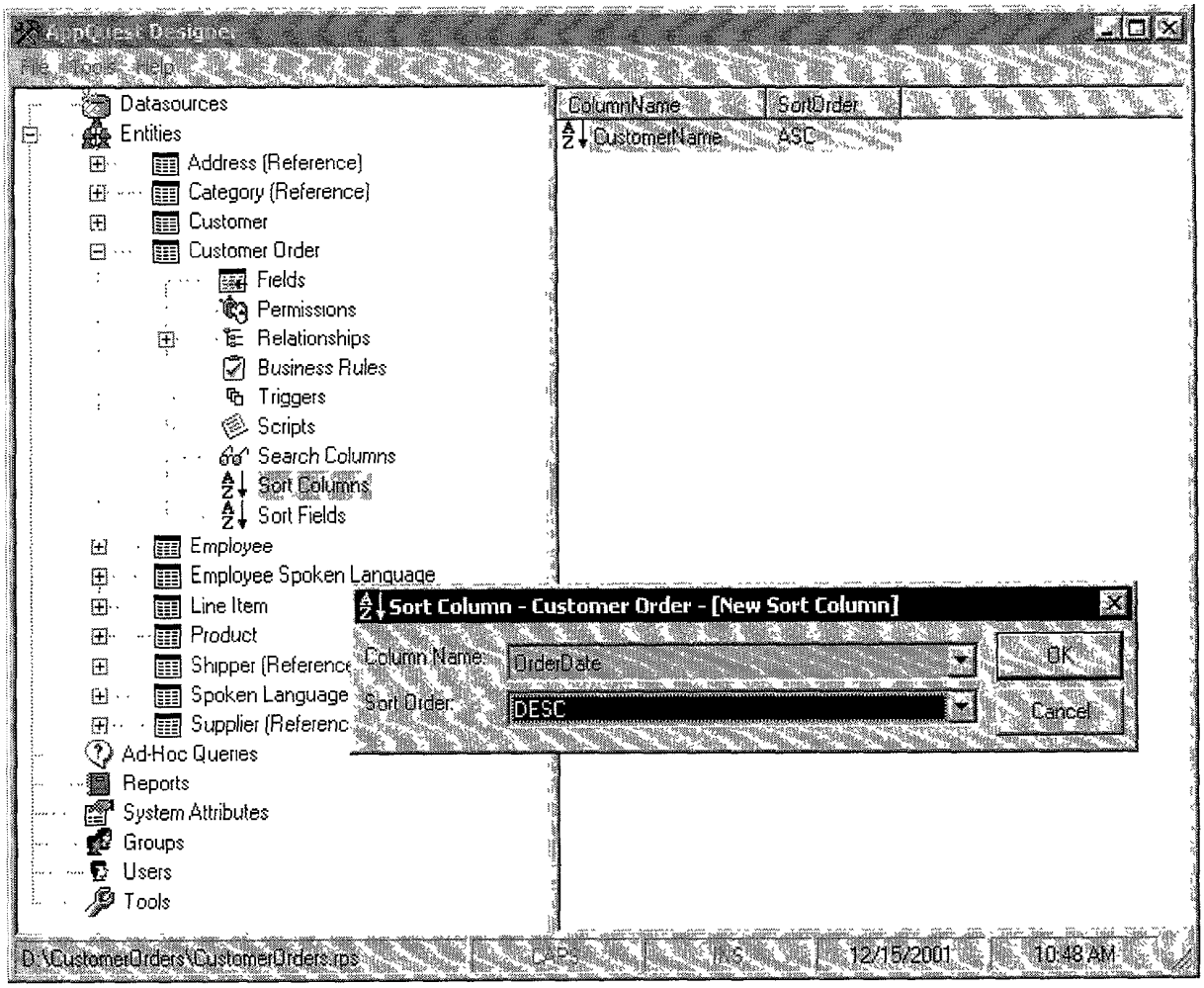

File Tools Help
Datasources
Entities
Address (Reference)
Category (Reference)
Customer
Customer Order
Fields
Permissions
Relationships
Business Rules
Triggers
Scripts
Search Columns
Sort Columns
Sort Fields
Employee
Employee Spoken Language
Line Item
Product
Shipper (Reference
Spoken Language
Supplier (Referenc
Ad-Hoc Queries
Reports
System Attributes
Groups
Users
Tools
ColumnName
SortOrder
CustomerName
ASC
Sort Column - Customer Order - [New Sort Column]
Column Name:
OrderDate
Sort Order:
DESC
OK
Cancel
D:\CustomerOrders\CustomerOrders.rps
CAPS
NUM
12/15/2001
10:48 AM

FIG. 66

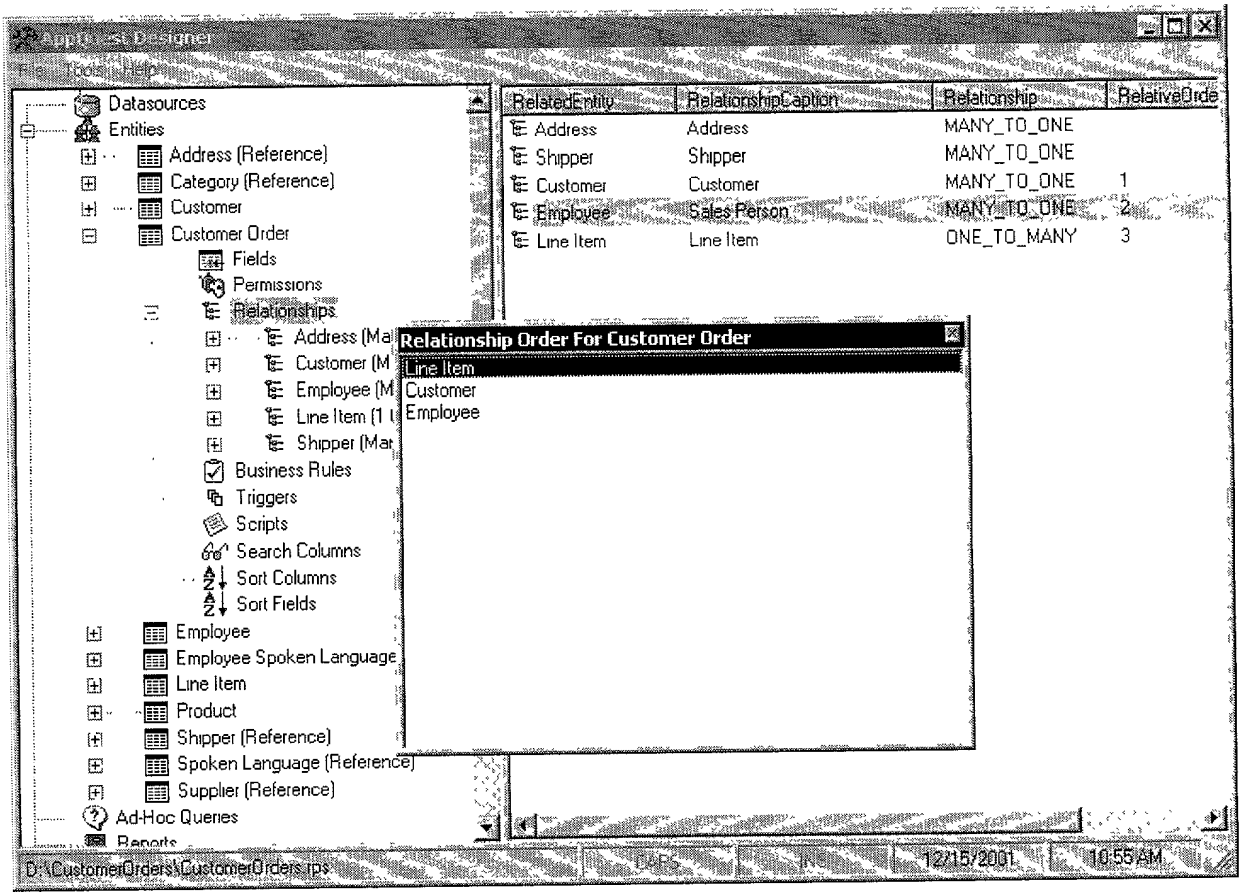

Tools Help
Datasources
Entities
Address (Reference)
Category (Reference)
Customer
Customer Order
Fields
Permissions
Relationships
Business Rules
Triggers
Scripts
Search Columns
Sort Columns
Sort Fields
Employee
Employee Spoken Language
Line Item
Product
Shipper (Reference)
Spoken Language (Reference)
Supplier (Reference)
Ad-Hoc Queries
Reports
RelatedEntity
RelationshipCaption
Relationship
RelativeOrde
Address
Address
MANY_TO_ONE
Shipper
Shipper
MANY_TO_ONE
Customer
Customer
MANY_TO_ONE
1
Employee
Sales Person
MANY_TO_ONE
2
Line Item
Line Item
ONE_TO_MANY
3
Relationship Order For Customer Order
Line Item
Customer
Employee
12/15/2001
10:55 AM

FIG. 67

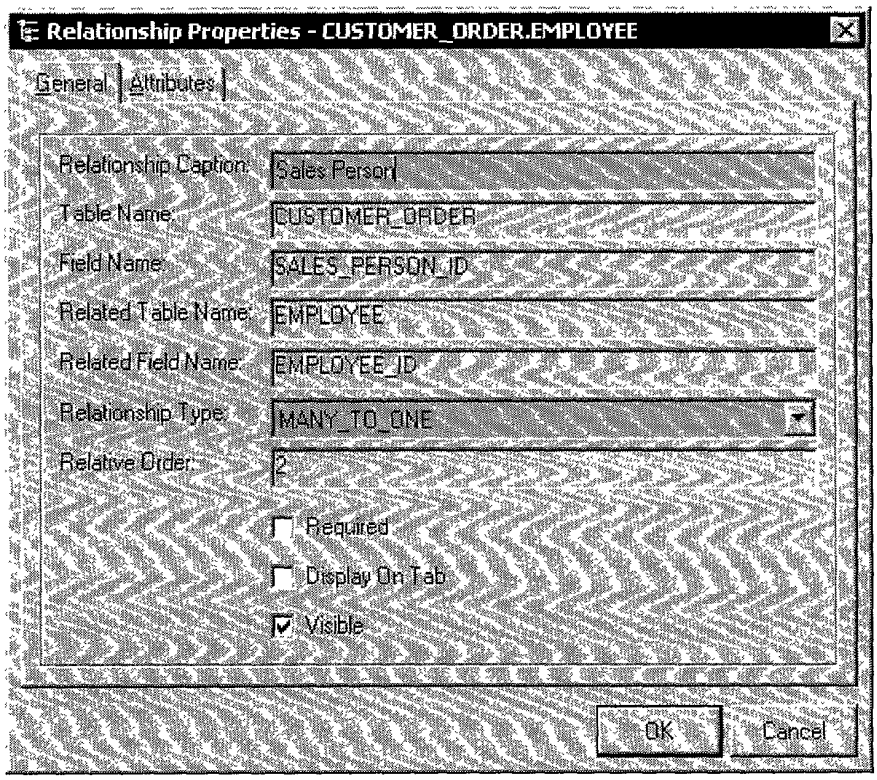

Relationship Properties - CUSTOMER_ORDER.EMPLOYEE
General
Attributes
Relationship Caption:
Sales Person
Table Name:
CUSTOMER_ORDER
Field Name:
SALES_PERSON_ID
Related Table Name:
EMPLOYEE
Related Field Name:
EMPLOYEE_ID
Relationship Type:
MANY_TO_ONE
Relative Order:
2
Required
Display On Tab
Visible
OK
Cancel

FIG. 68

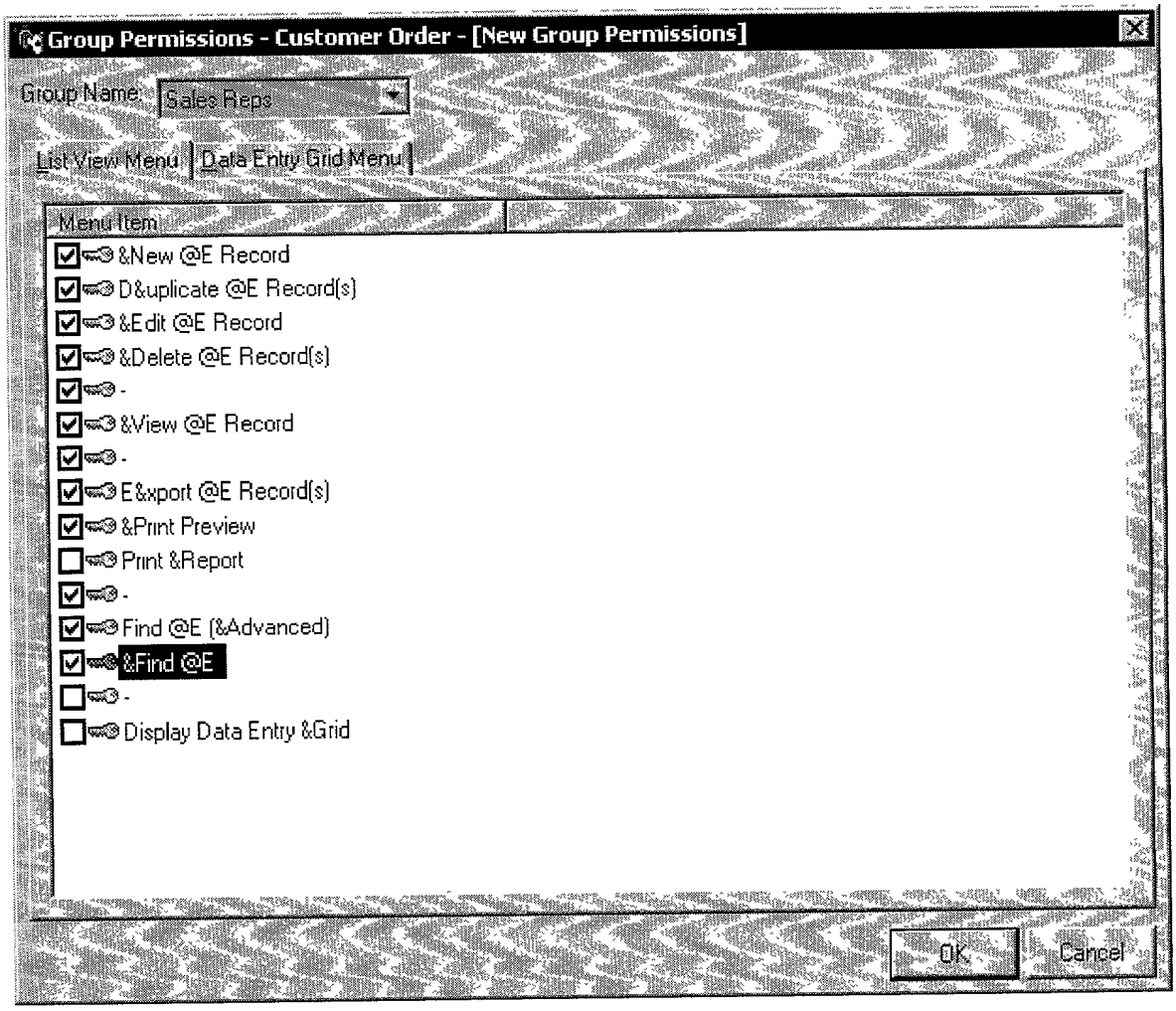

Group Permissions - Customer Order - [New Group Permissions]
Group Name:
Sales Reps
List View Menu
Data Entry Grid Menu
Menu Item
&New @E Record
D&uplicate @E Record(s)
&Edit @E Record
&Delete @E Record(s)
-
&View @E Record
-
E&xport @E Record(s)
&Print Preview
Print &Report
-
Find @E (&Advanced)
&Find @E
-
Display Data Entry &Grid
OK
Cancel

FIG. 69

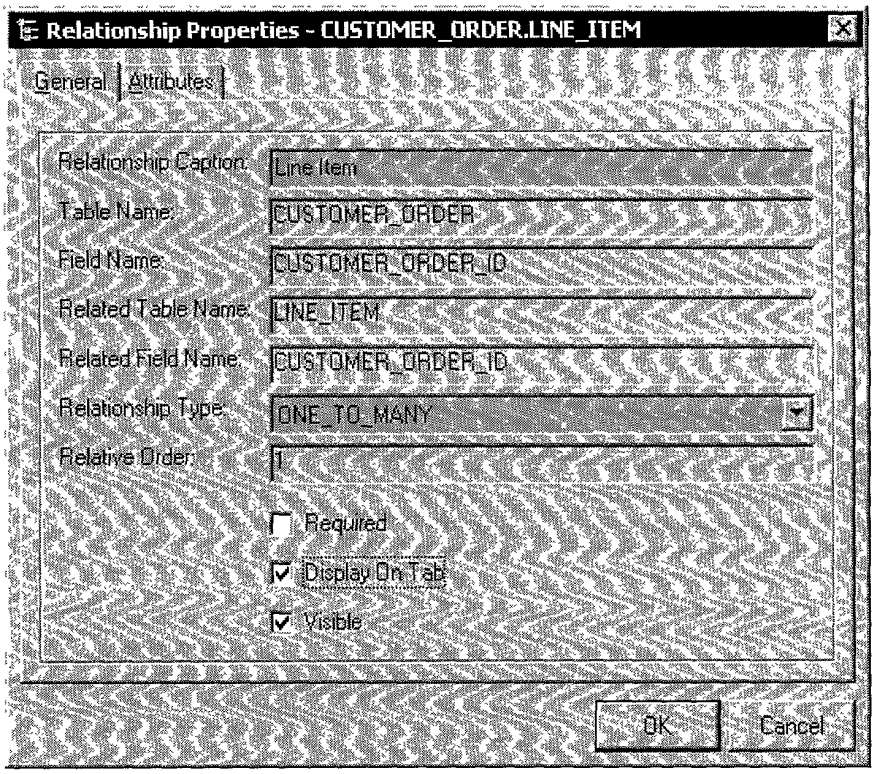

Relationship Properties - CUSTOMER_ORDER.LINE_ITEM
General
Attributes
Relationship Caption:
Line Item
Table Name:
CUSTOMER_ORDER
Field Name:
CUSTOMER_ORDER_ID
Related Table Name:
LINE_ITEM
Related Field Name:
CUSTOMER_ORDER_ID
Relationship Type:
ONE_TO_MANY
Relative Order:
1
Required
Display On Tab
Visible
OK
Cancel

FIG. 70

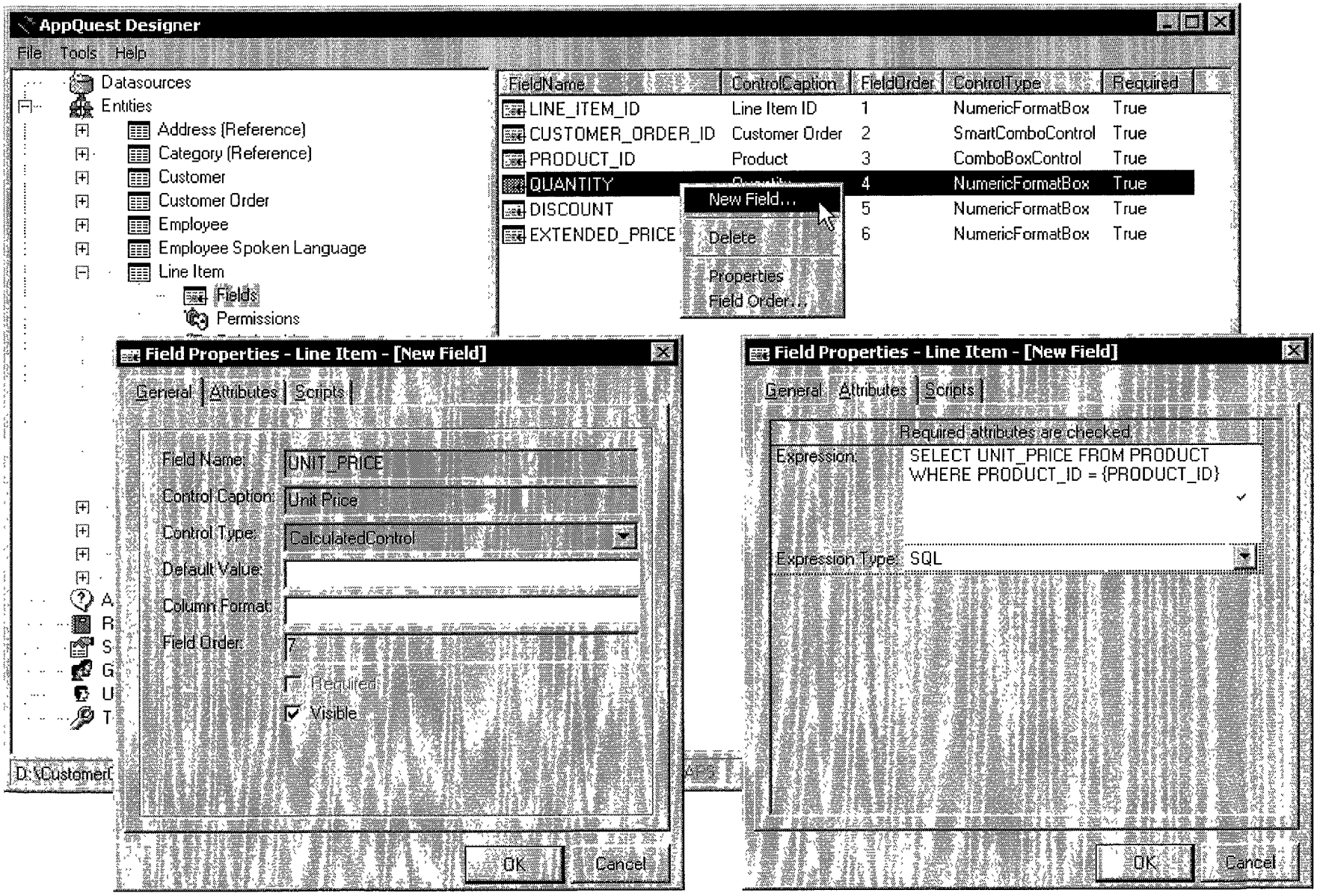

AppQuest Designer
File Tools Help
Datasources
Entities
Address (Reference)
Category (Reference)
Customer
Customer Order
Employee
Employee Spoken Language
Line Item
Fields
Permissions
FieldName
ControlCaption
FieldOrder
ControlType
Required
LINE_ITEM_ID
Line Item ID
1
NumericFormatBox
True
CUSTOMER_ORDER_ID
Customer Order
2
SmartComboControl
True
PRODUCT_ID
Product
3
ComboBoxControl
True
QUANTITY
4
NumericFormatBox
True
DISCOUNT
5
NumericFormatBox
True
EXTENDED_PRICE
6
NumericFormatBox
True
New Field...
Delete
Properties
Field Order...
Field Properties - Line Item - [New Field]
General
Attributes
Scripts
Field Name:
UNIT_PRICE
Control Caption:
Unit Price
Control Type:
CalculatedControl
Default Value:
Column Format:
Field Order:
7
Required
Visible
OK
Cancel
Field Properties - Line Item - [New Field]
General
Attributes
Scripts
Required attributes are checked.
Expression:
SELECT UNIT_PRICE FROM PRODUCT
WHERE PRODUCT_ID = {PRODUCT_ID}
Expression Type:
SQL
OK
Cancel
D:\Customer

FIG. 71

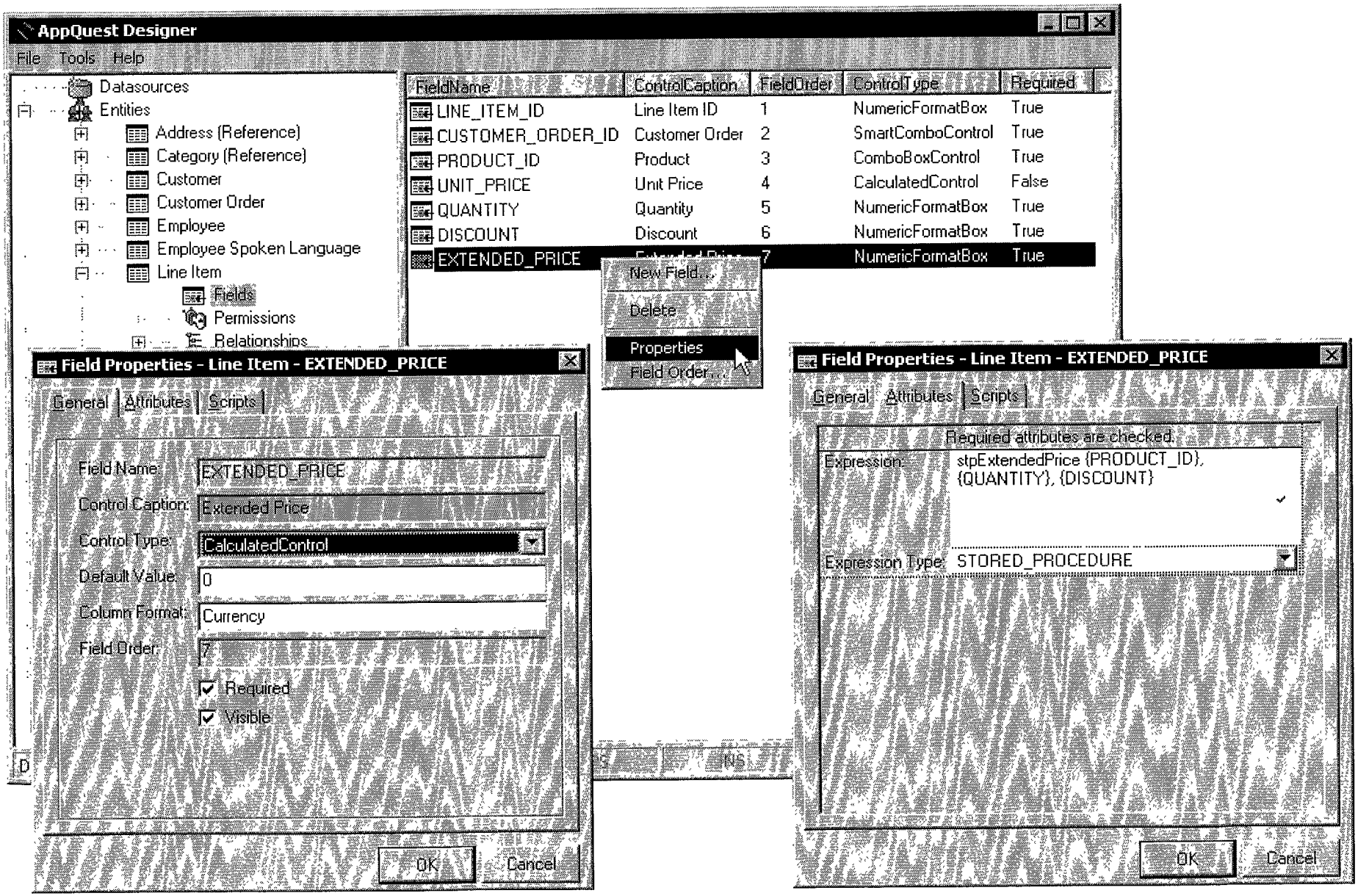

AppQuest Designer
File Tools Help
Datasources
Entities
Address (Reference)
Category (Reference)
Customer
Customer Order
Employee
Employee Spoken Language
Line Item
Fields
Permissions
Relationships
FieldName ControlCaption FieldOrder ControlType Required
LINE_ITEM_ID Line Item ID 1 NumericFormatBox True
CUSTOMER_ORDER_ID Customer Order 2 SmartComboControl True
PRODUCT_ID Product 3 ComboBoxControl True
UNIT_PRICE Unit Price 4 CalculatedControl False
QUANTITY Quantity 5 NumericFormatBox True
DISCOUNT Discount 6 NumericFormatBox True
EXTENDED_PRICE 7 NumericFormatBox True
New Field...
Delete
Properties
Field Order...
Field Properties - Line Item - EXTENDED_PRICE
General Attributes Scripts
Field Name: EXTENDED_PRICE
Control Caption: Extended Price
Control Type: CalculatedControl
Default Value: 0
Column Format: Currency
Field Order: 7
Required
Visible
OK
Cancel
Field Properties - Line Item - EXTENDED_PRICE
General Attributes Scripts
Required attributes are checked.
Expression: stpExtendedPrice {PRODUCT_ID}, {QUANTITY}, {DISCOUNT}
Expression Type: STORED_PROCEDURE
OK
Cancel

FIG. 72

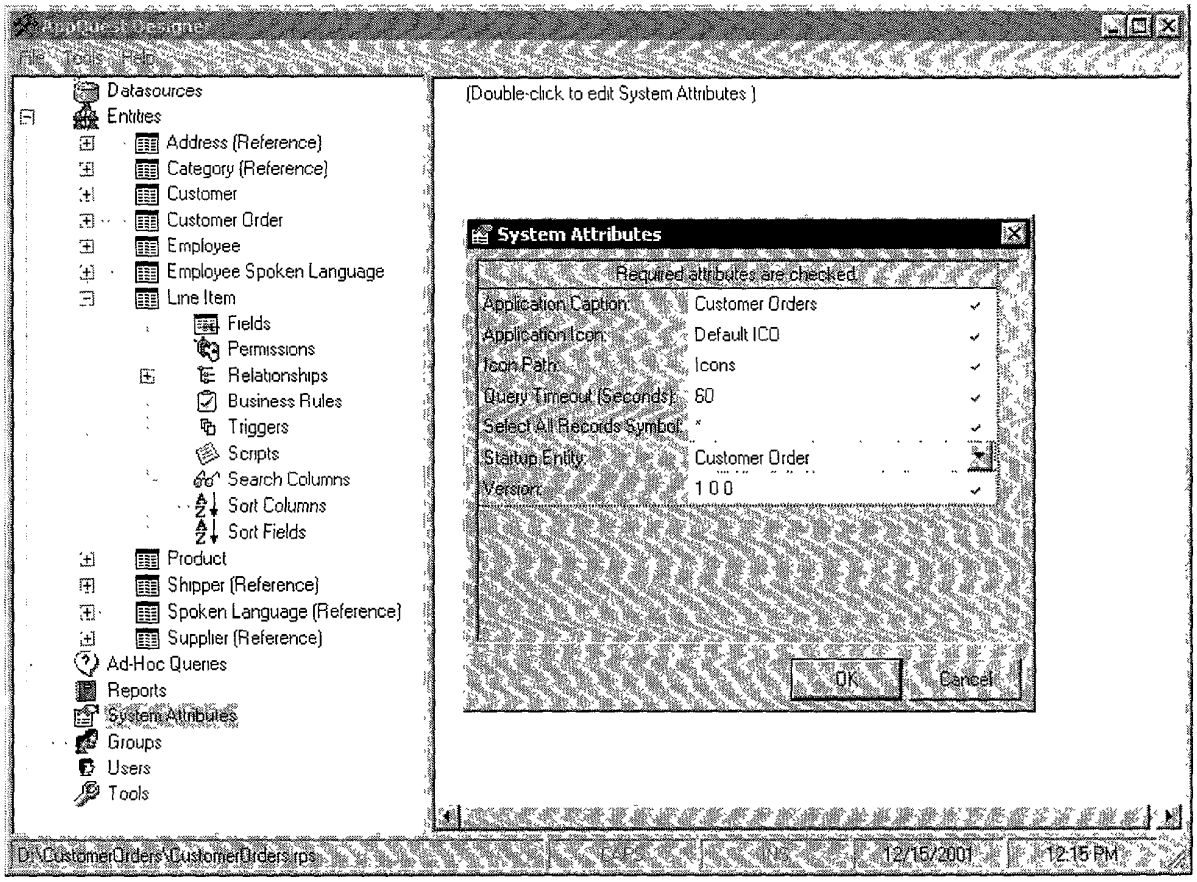

File Tools Help
Datasources
Entities
Address (Reference)
Category (Reference)
Customer
Customer Order
Employee
Employee Spoken Language
Line Item
Fields
Permissions
Relationships
Business Rules
Triggers
Scripts
Search Columns
Sort Columns
Sort Fields
Product
Shipper (Reference)
Spoken Language (Reference)
Supplier (Reference)
Ad-Hoc Queries
Reports
System Attributes
Groups
Users
Tools
(Double-click to edit System Attributes)
System Attributes
Required attributes are checked.
Application Caption: Customer Orders
Application Icon: Default ICO
Icon Path: Icons
Query Timeout (Seconds): 60
Select All Records Symbol: *
Startup Entity: Customer Order
Version: 100
OK
Cancel
D:\CustomerOrders\CustomerOrders.rps
CAPS
NUM
12/15/2001
12:15 PM

FIG. 73

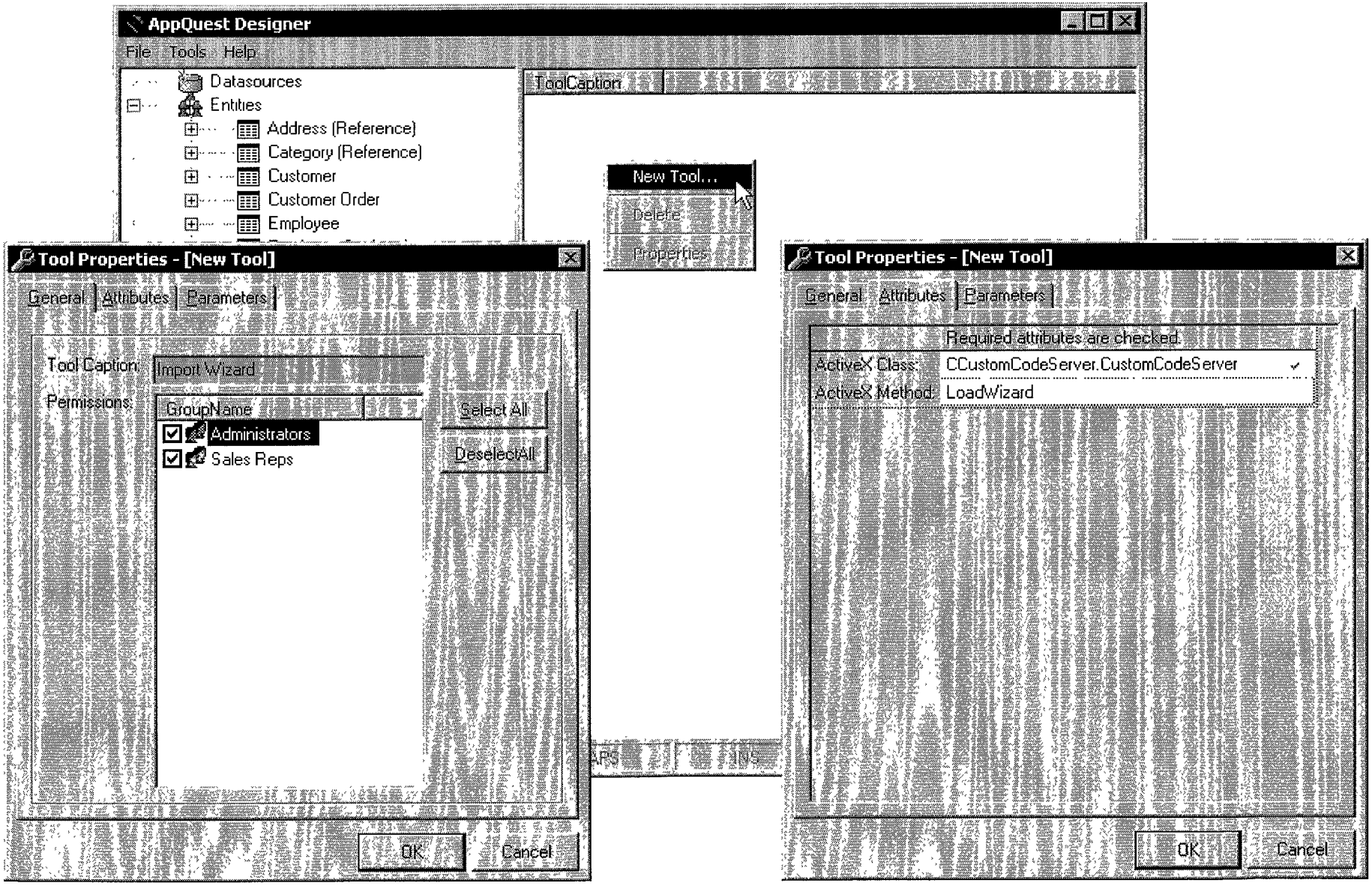

AppQuest Designer
File Tools Help
Datasources
Entities
Address (Reference)
Category (Reference)
Customer
Customer Order
Employee
ToolCaption
New Tool...
Delete
Properties
Tool Properties - [New Tool]
General Attributes Parameters
Tool Caption: Import Wizard
Permissions:
GroupName
Administrators
Sales Reps
Select All
DeselectAll
OK
Cancel
Tool Properties - [New Tool]
General Attributes Parameters
Required attributes are checked.
ActiveX Class: CCustomCodeServer.CustomCodeServer
ActiveX Method: LoadWizard
OK
Cancel

FIG. 74

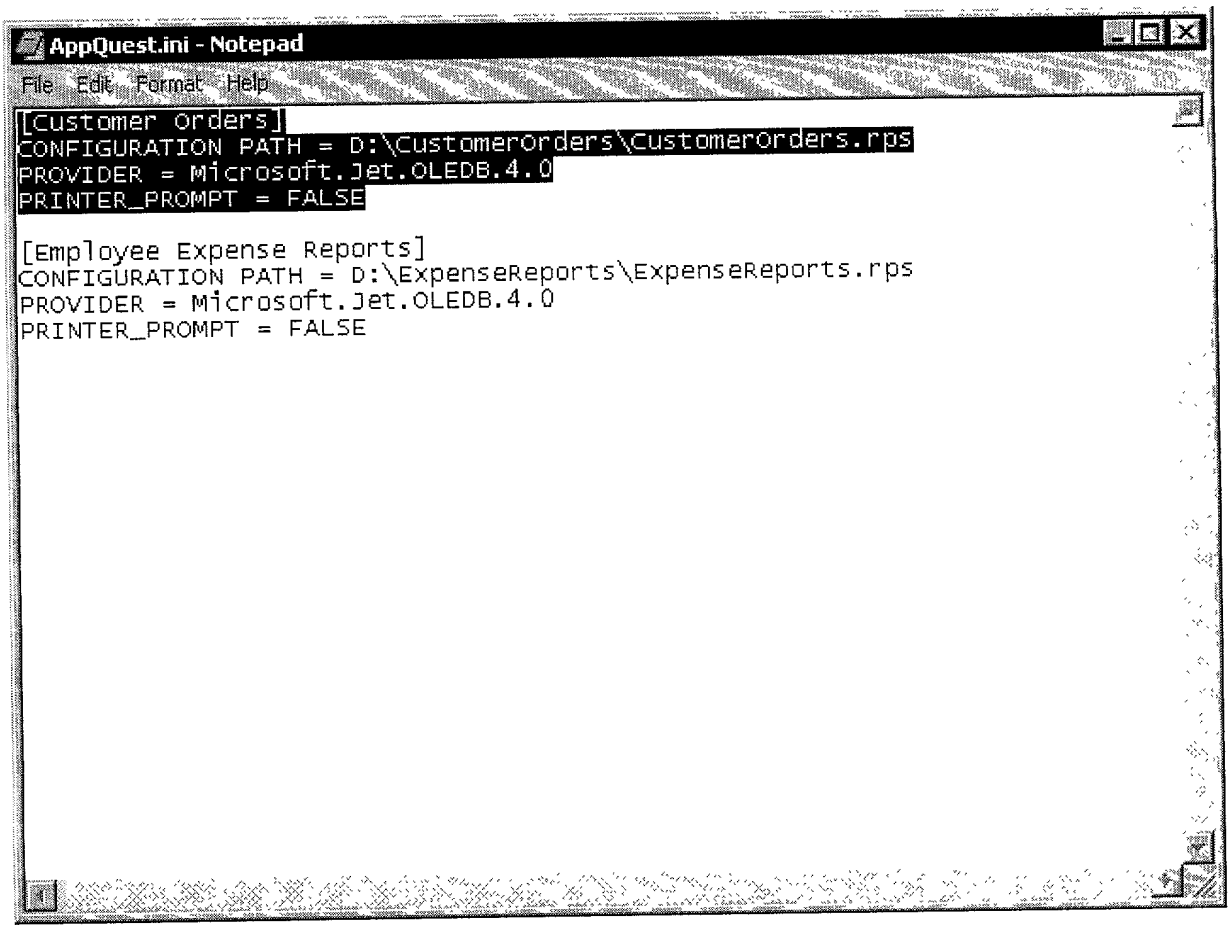

AppQuest.ini - Notepad
File Edit Format Help
[Customer Orders]
CONFIGURATION PATH = D:\CustomerOrders\CustomerOrders.rps
PROVIDER = Microsoft.Jet.OLEDB.4.0
PRINTER_PROMPT = FALSE
[Employee Expense Reports]
CONFIGURATION PATH = D:\ExpenseReports\ExpenseReports.rps
PROVIDER = Microsoft.Jet.OLEDB.4.0
PRINTER_PROMPT = FALSE

FIG. 75

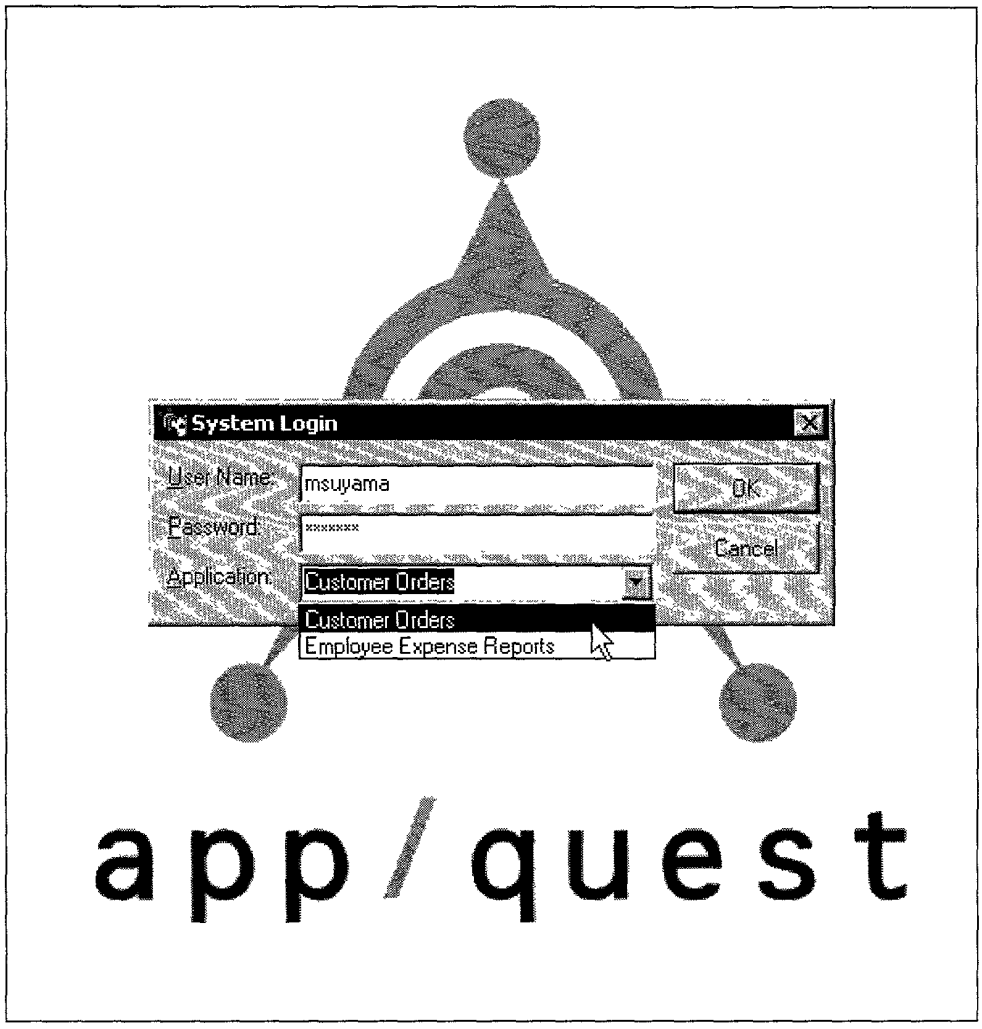

System Login
User Name:
msuyama
Password:
****
Application:
Customer Orders
Customer Orders
Employee Expense Reports
OK
Cancel
app/quest

FIG. 76

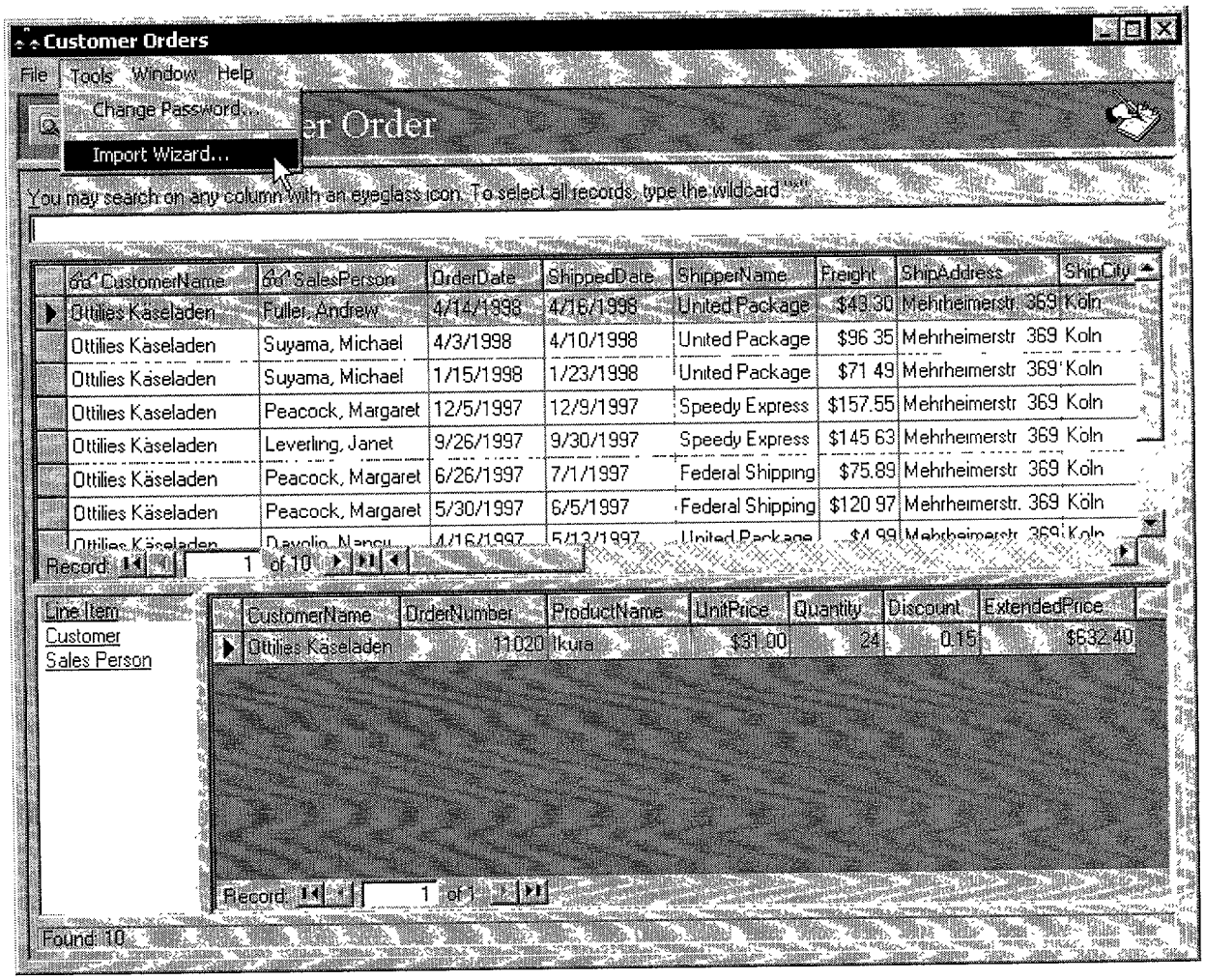

Customer Orders
File Tools Window Help
Change Password...
Import Wizard...
er Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*"
CustomerName SalesPerson OrderDate ShippedDate ShipperName Freight ShipAddress ShipCity
Ottilies Käseladen Fuller, Andrew 4/14/1998 4/16/1998 United Package $48.30 Mehrheimerstr. 369 Koln
Ottilies Käseladen Suyama, Michael 4/3/1998 4/10/1998 United Package $96.35 Mehrheimerstr 369 Koln
Ottilies Käseladen Suyama, Michael 1/15/1998 1/23/1998 United Package $71.49 Mehrheimerstr 369 Koln
Ottilies Käseladen Peacock, Margaret 12/5/1997 12/9/1997 Speedy Express $157.55 Mehrheimerstr 369 Koln
Ottilies Käseladen Leverling, Janet 9/26/1997 9/30/1997 Speedy Express $145.63 Mehrheimerstr 369 Koln
Ottilies Käseladen Peacock, Margaret 6/26/1997 7/1/1997 Federal Shipping $75.89 Mehrheimerstr 369 Koln
Ottilies Käseladen Peacock, Margaret 5/30/1997 6/5/1997 Federal Shipping $120.97 Mehrheimerstr. 369 Köln
Record: 1 of 10
Line Item
Customer
Sales Person
CustomerName OrderNumber ProductName UnitPrice Quantity Discount ExtendedPrice
Ottilies Käseladen 11020 Ikura $31.00 24 0.15 $632.40
Record: 1 of 1
Found: 10

FIG. 77

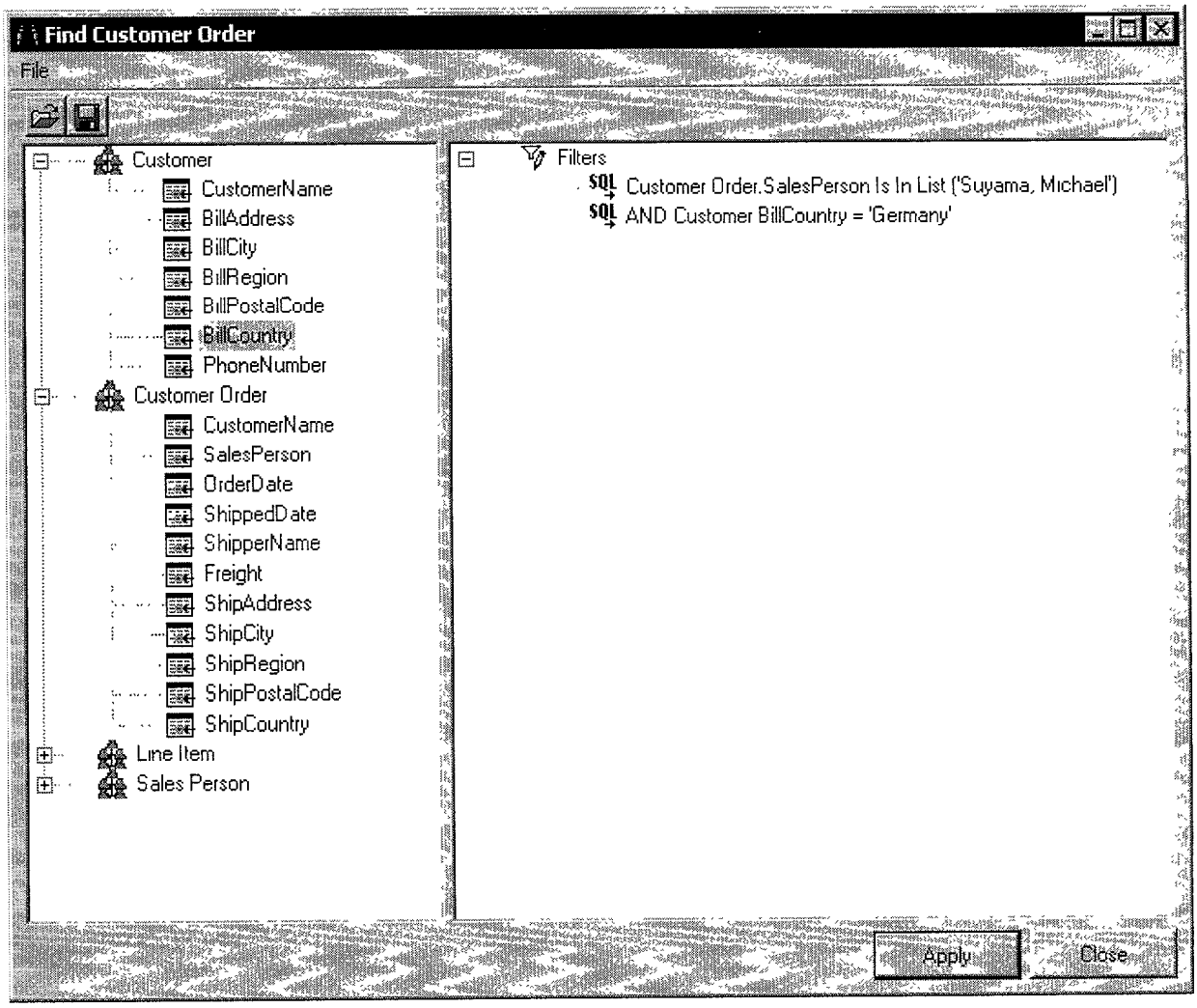

Find Customer Order
File
Customer
CustomerName
BillAddress
BillCity
BillRegion
BillPostalCode
BillCountry
PhoneNumber
Customer Order
CustomerName
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
ShipAddress
ShipCity
ShipRegion
ShipPostalCode
ShipCountry
Line Item
Sales Person
Filters
Customer Order.SalesPerson Is In List ('Suyama, Michael')
AND Customer BillCountry = 'Germany'
Apply
Close

FIG. 78

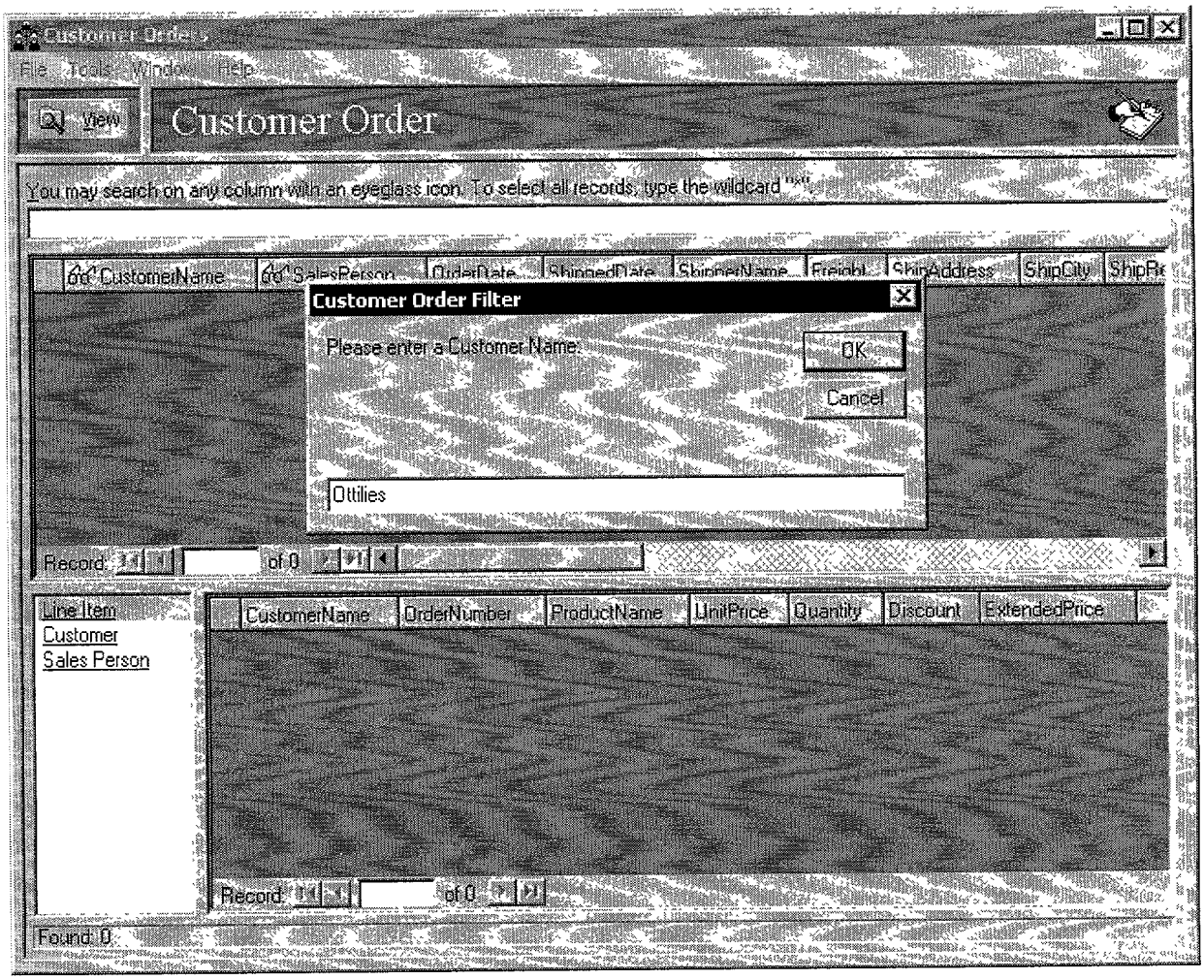

Customer Order
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type the wildcard '*'.
CustomerName
SalesPerson
OrderDate
ShippedDate
ShipperName
Freight
ShipAddress
ShipCity
Customer Order Filter
Please enter a Customer Name:
OK
Cancel
Ottilies
Record: of 0
Line Item
Customer
Sales Person
CustomerName
OrderNumber
ProductName
UnitPrice
Quantity
Discount
ExtendedPrice
Record: of 0
Found: 0

FIG. 79

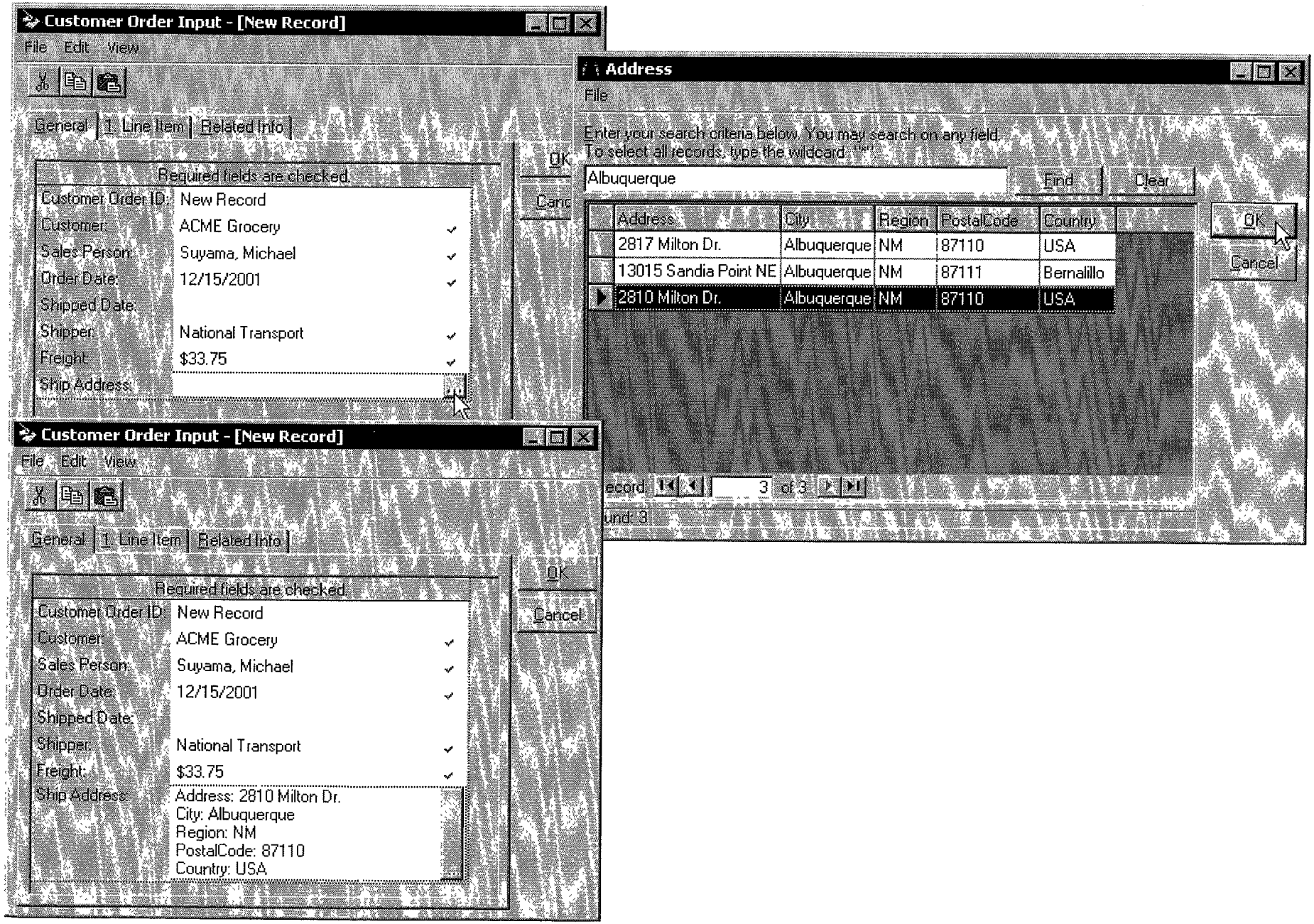

Customer Order Input - [New Record]
File Edit View
General 1. Line Item Related Info
Required fields are checked
Customer Order ID: New Record
Customer: ACME Grocery
Sales Person: Suyama, Michael
Order Date: 12/15/2001
Shipped Date:
Shipper: National Transport
Freight: $33.75
Ship Address:
OK
Canc
Address
File
Enter your search criteria below. You may search on any field.
To select all records, type the wildcard "%".
Albuquerque
Find
Clear
Address City Region PostalCode Country
2817 Milton Dr. Albuquerque NM 87110 USA
13015 Sandia Point NE Albuquerque NM 87111 Bernalillo
2810 Milton Dr. Albuquerque NM 87110 USA
OK
Cancel
ecord 3 of 3
und: 3
Customer Order Input - [New Record]
File Edit View
General 1. Line Item Related Info
Required fields are checked
Customer Order ID: New Record
Customer: ACME Grocery
Sales Person: Suyama, Michael
Order Date: 12/15/2001
Shipped Date:
Shipper: National Transport
Freight: $33.75
Ship Address: Address: 2810 Milton Dr.
City: Albuquerque
Region: NM
PostalCode: 87110
Country: USA
OK
Cancel

FIG. 80

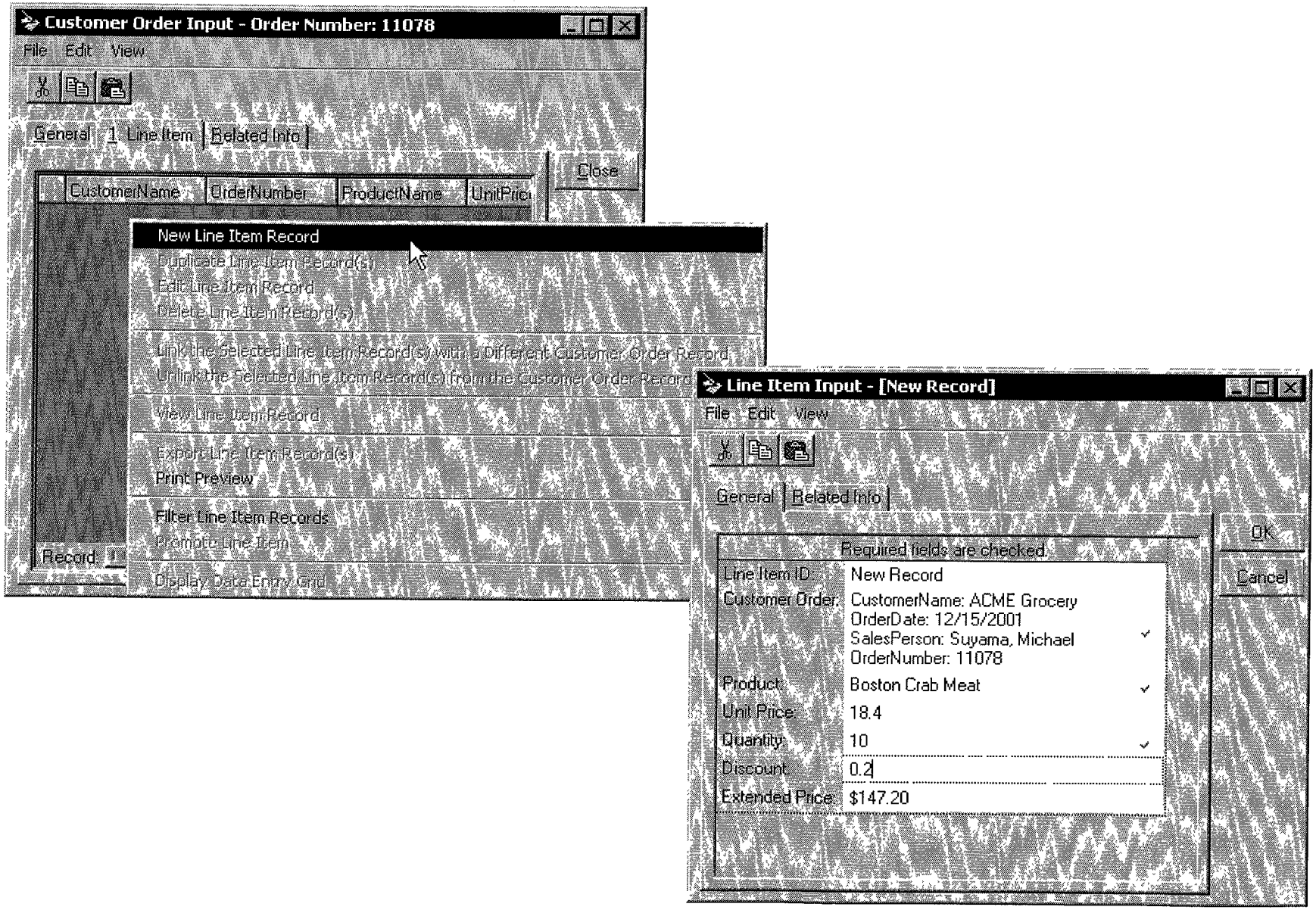

Customer Order Input - Order Number: 11078
File Edit View
General 1 Line Item Related Info
Close
CustomerName OrderNumber ProductName UnitPrice
New Line Item Record
Duplicate Line Item Record(s)
Edit Line Item Record
Delete Line Item Record(s)
Link the Selected Line Item Record(s) with a Different Customer Order Record
Unlink the Selected Line Item Record(s) from the Customer Order Record
View Line Item Record
Export Line Item Record(s)
Print Preview
Filter Line Item Records
Promote Line Item
Display Data Entry Grid
Record
Line Item Input - [New Record]
File Edit View
General Related Info
OK
Cancel
Required fields are checked
Line Item ID: New Record
Customer Order: CustomerName: ACME Grocery
OrderDate: 12/15/2001
SalesPerson: Suyama, Michael
OrderNumber: 11078
Product: Boston Crab Meat
Unit Price: 18.4
Quantity: 10
Discount: 0.2
Extended Price: $147.20

FIG. 81

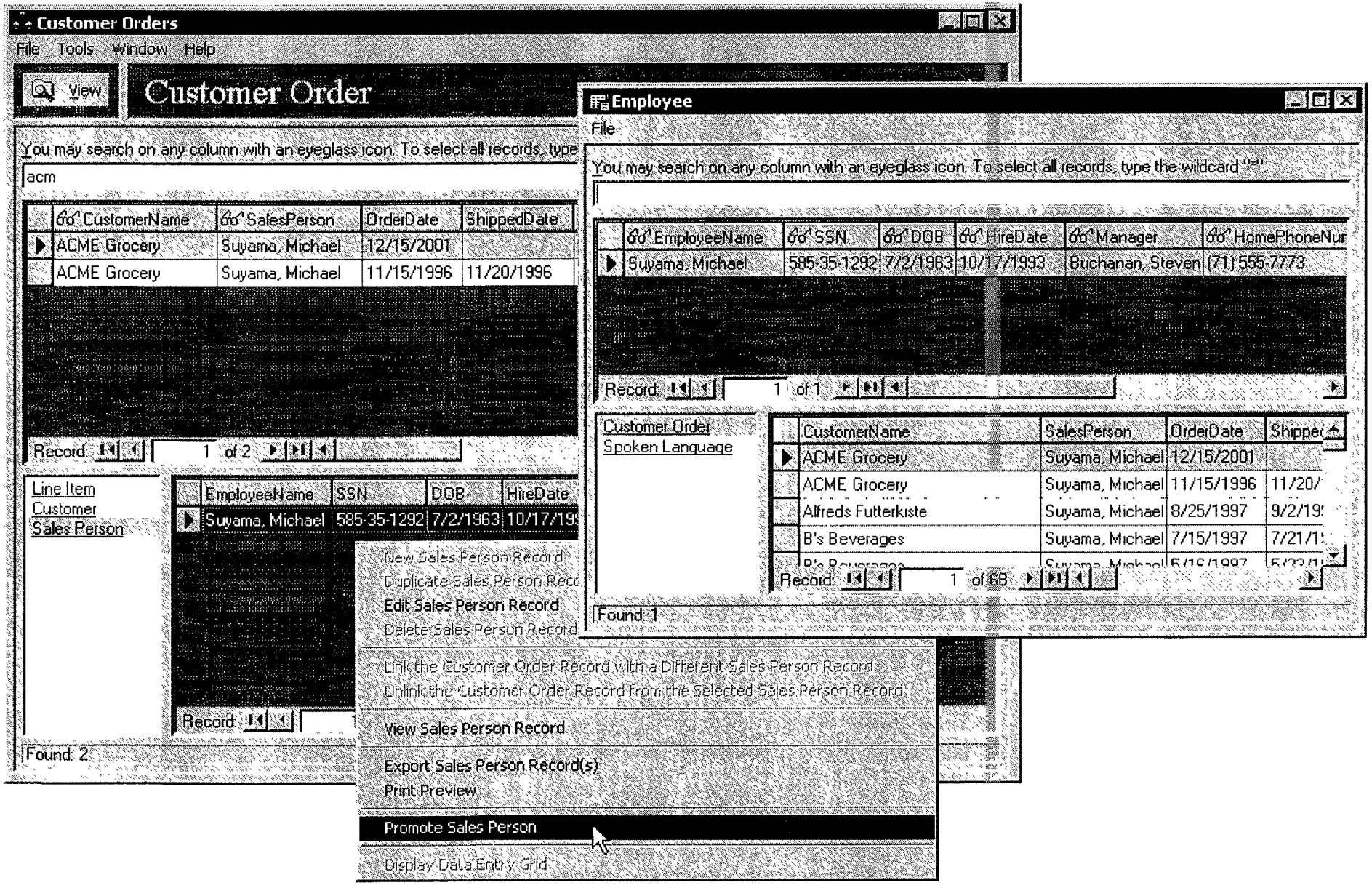

Customer Orders
File Tools Window Help
View
Customer Order
You may search on any column with an eyeglass icon. To select all records, type
acm
CustomerName | SalesPerson | OrderDate | ShippedDate
ACME Grocery | Suyama, Michael | 12/15/2001 |
ACME Grocery | Suyama, Michael | 11/15/1996 | 11/20/1996
Record: 1 of 2
Line Item
Customer
Sales Person
EmployeeName | SSN | DOB | HireDate
Suyama, Michael | 585-35-1292 | 7/2/1963 | 10/17/19
Record:
Found: 2
New Sales Person Record
Duplicate Sales Person Reco
Edit Sales Person Record
Delete Sales Person Record
Link the Customer Order Record with a Different Sales Person Record
Unlink the Customer Order Record from the Selected Sales Person Record
View Sales Person Record
Export Sales Person Record(s)
Print Preview
Promote Sales Person
Display Data Entry Grid
Employee
File
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*"
EmployeeName | SSN | DOB | HireDate | Manager | HomePhoneNur
Suyama, Michael | 585-35-1292 | 7/2/1963 | 10/17/1993 | Buchanan, Steven | (71) 555-7773
Record: 1 of 1
Customer Order
Spoken Language
CustomerName | SalesPerson | OrderDate | Shippe
ACME Grocery | Suyama, Michael | 12/15/2001 |
ACME Grocery | Suyama, Michael | 11/15/1996 | 11/20/
Alfreds Futterkiste | Suyama, Michael | 8/25/1997 | 9/2/19
B's Beverages | Suyama, Michael | 7/15/1997 | 7/21/1
Record: 1 of 68
Found: 1

FIG. 82

Employee
File
You may search on any column with an eyeglass icon. To select all records, type the wildcard "*".
EmployeeName
SSN
DOB
HireDate
Manager
HomePhoneNur
Suyama, Michael
585-35-1292
7/2/1963
10/17/1993
Buchanan, Steven
(71) 555-7773
Record: 1 of 1
Customer Order
Spoken Language
CustomerName
SalesPerson
OrderDate
Shipper
ACME Grocery
Suyama, Michael
12/15/2001
ACME
Alfreds
B's Be
Record:
Found: 1
New Customer Order Record
Duplicate Customer Order Record(s)
Edit Customer Order Record
Delete Customer Order Record(s)
Link the Selected Customer Order Record(s) with a Differe
Unlink the Selected Customer Order Record(s) from the Cr
View Customer Order Record
Export Customer Order Record(s)
Print Preview
Filter Customer Order Records
Promote Customer Order
Display Data Entry Grid
Customer Order Input - [New Record]
File Edit View
General
1 Line Item
Related Info
OK
Cancel
Required fields are checked.
Customer Order ID:
New Record
Customer:
Sales Person:
Suyama, Michael
Order Date:
Shipped Date:
Shipper:
Freight:
$0.00
Ship Address:

FIG. 83

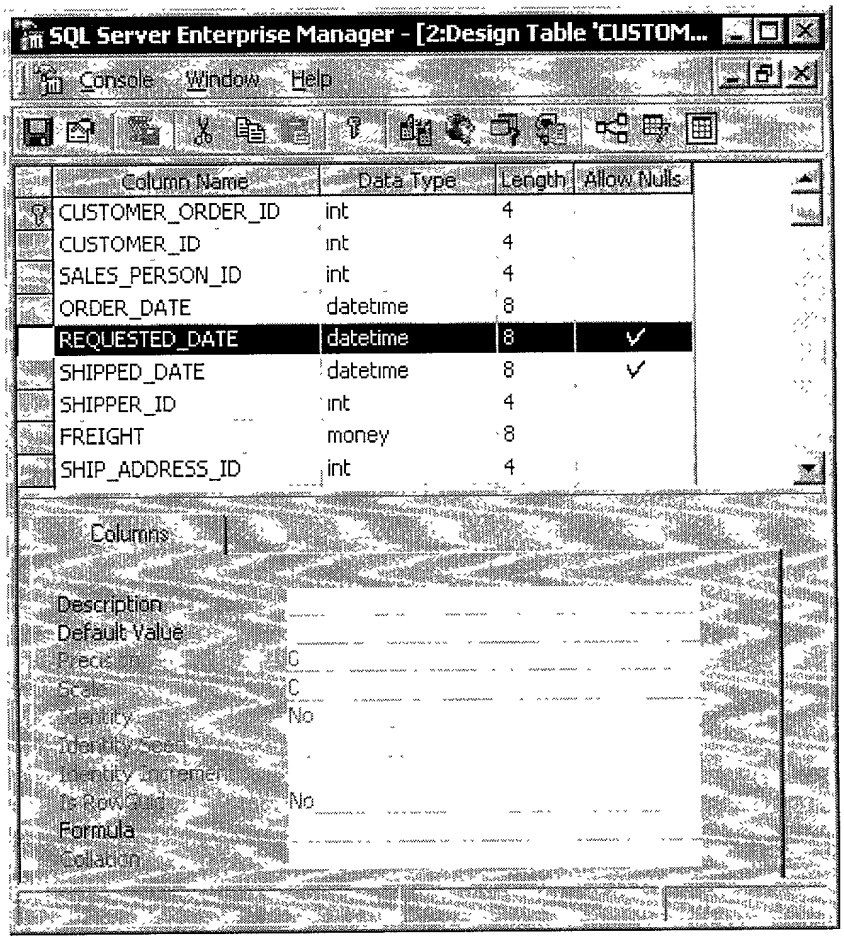

SQL Server Enterprise Manager - [2:Design Table 'CUSTOM...
Console
Window
Help
Column Name
Data Type
Length
Allow Nulls
CUSTOMER_ORDER_ID
int
4
CUSTOMER_ID
int
4
SALES_PERSON_ID
int
4
ORDER_DATE
datetime
8
REQUESTED_DATE
datetime
8
SHIPPED_DATE
datetime
8
SHIPPER_ID
int
4
FREIGHT
money
8
SHIP_ADDRESS_ID
int
4
Columns
Description
Default Value
Precision
Scale
Identity
Identity Seed
Identity Increment
Is RowGuid
Formula
Collation
No
No

FIG. 84

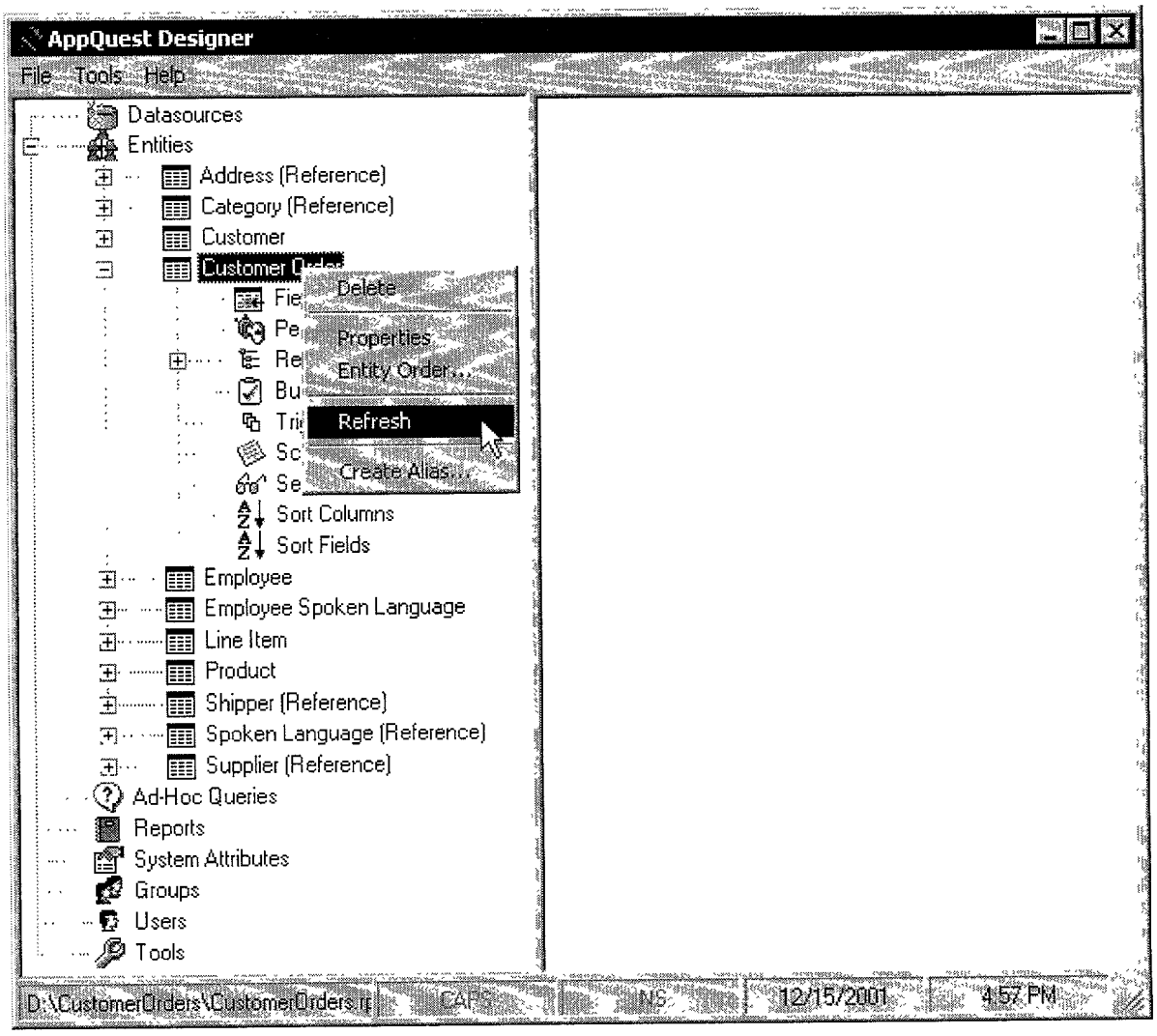

AppQuest Designer
File Tools Help
Datasources
Entities
Address (Reference)
Category (Reference)
Customer
Delete
Properties
Entity Order...
Refresh
Create Alias...
Sort Columns
Sort Fields
Employee
Employee Spoken Language
Line Item
Product
Shipper (Reference)
Spoken Language (Reference)
Supplier (Reference)
Ad-Hoc Queries
Reports
System Attributes
Groups
Users
Tools
D:\CustomerOrders\CustomerOrders.ir
CAPS
NUM
12/15/2001
4:57 PM

FIG. 85

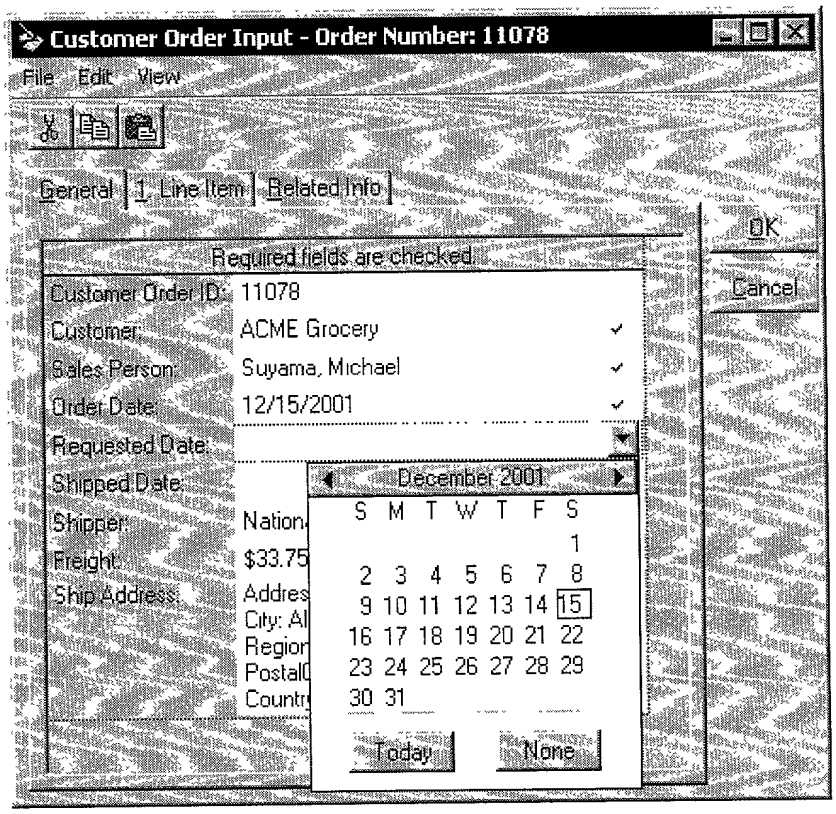

Customer Order Input - Order Number: 11078
File Edit View
General 1. Line Item Related Info
OK
Cancel
Required fields are checked
Customer Order ID: 11078
Customer: ACME Grocery
Sales Person: Suyama, Michael
Order Date: 12/15/2001
Requested Date:
Shipped Date:
Shipper:
Freight: $33.75
Ship Address:
December 2001
S M T W T F S
1
2 3 4 5 6 7 8
9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
30 31
Today
None

FIG. 86